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OPERATIVE TREATMENT OF FRACTURES

REPORT OF FIFTY-FIVE CASES IN WHICH LANE BONE PLATES AND SCREWS WERE EMPLOYED

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The question as to whether operative procedure is indicated in fractures depends on a variety of circumstances and conditions. It may be necessary to fix the fractured parts immediately, or at some future time, to correct faulty or delayed union. The indications for operation are:

1. Certain simple fractures which cannot be treated satisfactorily by means of splints, extension, etc., i. e., oblique fractures of the leg or forearm in which both bones are fractured.
2. Compound fractures.
3. Fractures which are irreducible, i. e., certain serrated fractures or those in close proximity to joints.
4. Fractures which show abnormal position where accurate reposition has not been secured and in which there is fibrous, delayed or faulty bony union.

The question of operation is a much-deb..ted point, some very able surgeons going so far as to advocate operative procedure in fractures of all long bones, regardless of the position of fragments. This is a rather radical procedure and one that is not justifiable in the great majority of fractures. No fracture should be compounded if it can be properly reduced and kept in reduction. Operative measures in these cases are to be considered seriously and the same precautions must be used to eliminate sepsis as in abdominal surgery. There is often great bruising and trauma to the soft parts, with free extravasation of blood; this, with the trauma inflicted by use of heavy instruments, is sufficient to lower the resisting power of the parts, making them more susceptible to infection.

I employ the *x*-ray, both for diagnostic purposes and to ascertain results of treatment. Too much dependence must not be placed on this procedure, as it is often very deceptive and misleading. I favor the stereoscopic plates, as this gives one a more accurate idea of the existing relations. It has been my practice to have *x*-ray plates made (wherever practical) on admission of patient, after the parts are reduced and before discharge, so that I may have a check on the case; also to note if any degenerative processes have taken place.

In the patients treated I have not observed any evidence of loosening of the screws. Some of the plates and screws were removed three or four months after insertion. It was found necessary to unscrew with the screwdriver, the thread in the cancellated structure being almost intact and holding the plate in perfect position.

All fractures should be compounded if it is found that reduction cannot be accomplished by other means. It is impossible to obtain accurate approximation in a certain class of cases, notably, the oblique fractures of both bones of the leg and forearm, also the patella and olecranon. It is difficult to secure accurate apposition in fractures of the femur, the end result usually showing shortening. I believe in compounding fractures of the femur in which the *x*-ray shows an overriding or lateral displacement.

There are as many different treatments for fractures of the femur as there are surgeons employing them. The fact that there is such a diversity of opinion and methods of treatment is sufficient evidence of its failure to obtain satisfactory results. I refer to the treatment by means of splints, extensions, etc.

While it is advisable that one should not be too radical along these lines, the fact remains that many fractures of the femur have been badly treated in the past. It is well to bear in mind the possibility of sepsis and failure to carry out the after-treatment of these cases, either of which might result disastrously. I prefer to operate after the first week or ten days for following reasons:

1. Clotting in the vessels has begun, the lymphatics showing a cofferdamming, the chance for sepsis being less as the local resistance and local leukocytosis are greater.
2. There is less hemorrhage, thereby diminishing the necessity of a drain, which, however, is seldom used.
3. Fractured parts are more readily reduced and drilled, making apposition more accurate.
4. There will be less contraction of the muscles, making it easier to keep the parts in good position by means of extension or splints.
5. The operation can be done with greater facility.

If operation is delayed for from four to six weeks, the ends of the bones become "rounded off" with callous or fibrous tissue. This makes the tendency to displacement greater, even where mechanical devices are used.

ADVANTAGES OF STEEL PLATES AND SCREWS

The advantages of steel plates and screws are: (1) great ease and rapidity with which the plate and screws can be applied; (2) accurate approximation of parts; (3) reduction in disability by restoring parts to normal.

Objections have been made to the insertion of a foreign body, in that it sets up an irritation accompanied by a rarefaction of the bone, the screw acting as a mere plug. I cannot agree with this opinion, as the *x*-ray plates show the screws in good position. It has been an agreeable surprise to find the thread intact after being *in situ* for six months. Granted that the screws do cause some rarefaction, they can readily be removed after union has taken place, nitrous oxid and oxygen anesthesia being sufficient to use in the removal of the great majority of

plates, if it is found necessary to do so. It is generally admitted that clean compound wounds heal more slowly than similar wounds which are not compound; the cause not being very clear, unless it should be due to the greater trauma inflicted.

During the past year it has been my routine practice to compound all simple fractures of the long bones, in which I was unable to restore the fragments to their normal relationship, introducing a Lane bone plate with screws. The same procedure has been followed in all compound fractures in which there was faulty position.

The advantages to be gained are:

1. Shortening of the duration of illness and convalescence, in that union is practically by first intention, very rapid and satisfactory.

2. Restoration of the injured parts to normal, establishing the best continuity, which is most essential.

Fig. 1.—Anteroposterior view of fracture of both bones of the forearm in the author's Case 24.

Fig. 2.—Anteroposterior view of fracture shown in Figure 1 with Lane bone plate applied to the radius.

Fig. 3.—Lateral view of the fracture shown in Figures 1 and 2, showing perfect alignment from this aspect. The functional result in this case was perfect.

3. Relief of pain and discomfort, which is due to the movements of the fractured parts on one another, and the extravasation and transudation of blood and serum into surrounding tissues, causing increased tension.

4. Lessening physical disability by restoring the parts to their former anatomic position.

It may be that in some few cases of simple fracture, non-union results from some cause which could not be eliminated by operative treatment. These cases, however, are rare; it is seldom that one sees a case in which union would not have resulted if efficient measures had been adopted.

Ununited fracture is a rather common occurrence. We frequently hear surgeons make assertions as to the proper treatment of fractures, which they possibly believe to be accurate, but which give every reason to be received with suspicion. I have in mind one surgeon of ability who made the statement that he treated fractures of the femur by immediately placing in a plaster cast, to be retained for ten weeks. He stated that he never had any bad results, and that good, firm, bony union always resulted. It is unnecessary to discuss further such an assertion. Statistics by different authors vary greatly. One stated that non-union took place once in a total of 446 cases. Another states that it does not exceed one in 500, and thinks this a rather high estimate. These statistics are not accurate.

I do not think the surgeons of to-day any less competent or successful than their predecessors in obtaining union, as practically the same crude methods were employed by both.

The discovery of the *x*-ray has unquestionably aided in the scientific and accurate diagnosis of all fractures. The probability is that the earlier observers, Liston, Hamilton, Agenew and Gross, were less careful in their examination of results; hence the difference between their observations and statistics and those of the present-day observers. Should there be any truth in these published statistics, it would be difficult to account for the number of cases reporting for treatment.

The treatment of fractures is a great source of worry and unnecessary alarm to the great majority of practitioners. This should not be so, providing an accurate and definite diagnosis has been made, which has been proved by *x*-ray pictures. There would be fewer cases of non-union if the fractured parts were properly reduced and kept in accurate approximation.

THE OPERATIVE TECHNIC OF SIMPLE FRACTURES

The operative procedure is comparatively safe and easy in the great majority of cases, provided the patients

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are operated on before the formation of callous or fibrous tissues. It is necessary that a most rigid and thorough technic be enforced, and every precaution taken to prevent infection, as a great amount of metal must be left in the wound. The skin must be thoroughly cleansed. It is sometimes found necessary to scrape it. The skin should be excluded from the field of operation. Specially constructed instruments should be used, i. e., drills, screw-drivers, bone-forceps, bone-clamps, bone-elevator, plates and screws.

The best means of retaining a fracture in apposition is by means of screws and steel plates. I find that it is a mechanical impossibility to secure accurate apposition with silver wire, should there be a force tending to displace the fragments by exertion. It has been demonstrated many times that the wire forms a loop, and it must be borne in mind that there is always a tendency for the wire to break or twist. A screw is the most dependable and efficient means of securing and retaining in accurate position fracture parts. The Lane bone plate with screws is a most valuable asset to our present surgical armamentarium.

The Lane steel bone plate is perforated so that the screws can be inserted as desired. These plates are made in many different sizes with screws to fit the plate. The plate should be so placed that it does not project or cause pressure on the skin, as this is likely to cause pain, and would necessitate removal. In long bones like the humerus and femur, where there are soft parts enough to cover the plate, little or no difficulty is encountered from this cause. A thin plate should be employed wherever possible, and small screws. The smaller the amount of foreign body the better. If a thick plate is found necessary, it can readily be removed at some future time. It has been stated that rarefying osteitis has been caused by the use of screws and plates. This is probably due to the failure of the mechanical appliance to immobilize the parts. The hopelessness of any surgery other than operative will be illustrated by the skiagrams. These prove the mechanical advantages gained, and cast doubt on the truth of statements that are made as to the results obtained by treatment of these conditions by other than operative methods. A good deal might be said of the inaccuracy of these statements. A skiagram affords evidence and speaks for itself.

Fig. 4.—Fracture of the femur within the upper third in author's Case 18, showing long Lane bone plate applied. Radiogram taken four months after operation.

Fig. 5.—Fracture of both bones of the leg in the lower third in the author's Case 62; anteroposterior view showing vanadium steel bone plate applied to the tibia with self-tapping machine screw.

Fig. 6.—Lateral view of fracture in author's Case 62 with vanadium steel bone plate applied. The fibula is not plated, as it falls into fairly good apposition on the adjustment and fixation of the tibial fragments.

In fractures of the femur, I find it necessary to employ screws of sufficient strength, there being strain exerted on the fracture in both the active and passive movements of the patient. It is also necessary to perforate the fragments and institute a mechanical device which will secure apposition. Encircling wires have been advocated by some writers. This, however, is absolutely hopeless and affords no efficient obstacle to the separation of fragments.

PREPARATION OF THE PATIENT AND THE FIELD FOR OPERATION

An operation is usually scheduled for 8:30 in the morning. On the day previous, light diet for dinner, liquids without milk for supper; water may be given within four to six hours before operation; at 9 p. m.,

castor-oil, 2 ounces, and a glass of beer are administered. In the morning simple enemata are given until the fluids return clear. The patient is catheterized if unable to void before going to the operating-room.

After thorough scrubbing of hands, the nurse must remove the hair from the part by applying a depilatory paste. The composition of this paste is as follows:

R. Barium sulphid ..... 25 parts
Pulverized soap ..... 5 parts
Talc ..... 35 parts
Triticum ..... 35 parts
Benzaldehyd ..... q. s.

Directions: Dissolve 1 dram of powder in 3 drams of water and apply with a shaving-brush; after four or five minutes, moisten with water. Five minutes later deluge the parts with water at 100 F., then dry.

The evening before operation the field is prepared in the following manner, using gauze sponge for scrubbing: tincture of green soap followed by water, five minutes; alcohol (phenolized), two minutes; mercuric chlorid (1-2,000), two minutes. The field is then covered with dry gauze to remain in position until removed in the operating-room. Before the operation a 7 per cent. solution of tincture of iodin is painted on the skin with a small sponge or brush. Thick skin found on the hands or soles of the feet may require scraping or a 50 per cent. soap poultice for three to six hours. One-half hour before operation a hypodermic of morphin sulphate, 1/6 grain, and atropin, 1/150 grain, is administered. It is necessary to disinfect the entire limb thoroughly. The objections to shaving is that the scratches and breaks in the skin are favorable points for the development of colonies of staphylococci. The most frequent source of infection is from contaminated skin which has not been cleansed.

OPERATION

The anesthetic used is nitrous oxid and oxygen as a preliminary, to be followed by ether, by the drop method. Heavy rubber gloves are to be used by the operator and assistant. A free incision is made at the most accessible point, bearing in mind the avoidance of important structures. The fractured parts are exposed, and, if necessary, freshened with a curet or chisel, the parts being approximated and held by the assistant or by a bone clamp. The plate is placed in position, the proximal cancellated structure being drilled, the drill going through to the medullary canal; the screw is then inserted. This is performed on the distal fragment. The proximal fragment is then treated in the same manner. After the plate is thus secured on the fractured parts, it is made more secure by the insertion of two or three more screws, as the case may necessitate. It is not necessary to scrape or remove any of the periosteum. The plate can be placed immediately over the periosteum and the screws inserted very readily. The more traumatism to the periosteum, the more is the blood-supply to the part interfered with. The drills must be made to fit the screw; unless this precaution is observed, great difficulty will be encountered in inserting the screws. The drill-hole will be either too large, not giving proper support, or too small, which will comminute the bone. The muscles and fascia are sutured with catgut, skin closed with horsehair or silkworm-gut or linen. If necessary, a small rubber tissue drain is inserted and the parts placed in a plaster-of-Paris mold or wire splint.

COMPOUND FRACTURES

The wound is packed with plain gauze, until the gauze lies even with the skin; every effort is made to secure perfect asepsis. The skin is scrupulously cleansed, gauze removed and wound enlarged to allow free cleansing, the tissues being cauterized with phenol (carbolic acid), followed by alcohol. The wound is never irrigated for fear of carrying infection or foreign material into the recesses. Probing for diagnosis is never allowable. The parts are thoroughly cleansed and dried and iodin applied to the skin. After seven to ten days the same operative procedure is followed as in simple fracture.

I prefer the adjustable wire splint to plaster for the immediate dressing, for the following reasons:

1. It is more comfortable to the patient.
2. It allows swelling of the parts without any danger of pressure circulatory interference.
3. It can be removed with ease for inspection.
4. It can be sterilized and more easily kept clean.

When the swelling subsides a plaster mold is applied, which should be bivalved on the second day, so as to permit frequent inspection. In fractures of the leg or thigh, Buck's extension is applied to separate or keep apart the articular surfaces of the knee-joint, thus reducing the possibility of ankylosis. This is very essential in the treatment of fractures of the femur. The necessity of this procedure has been ably presented and emphasized by Murphy and should be adopted as a routine measure.

POSTOPERATIVE TREATMENT

The patient is returned to bed, surrounded with an electric blanket and electric warming-pads. The molds or splints are reinforced by sand-bags. Dressings are not removed for ten days, unless there should be some reason for doing so, at which time sutures are removed. Passive motion, electricity and massage are started the third week. The patient is allowed on crutches at the end of ten days or two weeks, if the fracture is below the knee, the parts being enclosed in plaster mold, reinforced by buckled tape.

Following the operation, the patient usually has a slight rise of temperature for two or three days. The pain is very slight. The wound is inspected in seven to ten days. Any rise of temperature or great discomfort is an indication for inspection. Oozing and staining by blood are to be expected.

CLINICAL FINDINGS AND RESULTS

Of the fifty-five fractures operated on, there were four of the clavicle, three of the humerus, two of the radius (both radius and ulna being fractured), fourteen of the femur and thirty-two of the tibia, twenty-five of which showed a fracture of both tibia and fibula. There were twenty-eight compound cases—one humerus, two femurs and twenty-five tibias. There were no deaths. In fifty-three cases there was healing by first intention, there being two infections. The first infection was in a compound, comminuted, complicated fracture of the middle third of the leg in which both bones were fractured. There was a very extensive traumatism and laceration of the soft parts. This case was a border-line case, and it was not known at the time whether an amputation would have to be performed later or not. The patient made an attempt to walk ten days after the operation, causing the plate to become loose. The infection was due to the *Bacillus aërogenes capsulatus*. Multiple incisions were made and drainage employed, the wounds finally healing, with good bony union. The second infection was in a compound fracture of the femur which was allowed to heal by granulation, the fragments

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being in good apposition, there being but slight overlapping. The patient had a very low resisting power; at the end of ten weeks the wound had completely healed, with non-union. Operation was performed twelve weeks after admission. Following the traumatism of the muscles, there developed a streptococcus infection of the muscles, which had existed prior to the closing of the primary wound. Free drainage was established, the pus being quickly evacuated. The wound healed by granulation, the patient making an uneventful recovery. The wounds in the remaining cases healed by first intention, with good, firm bony union. In five cases there was an excess of callus, which caused pain, the patients requesting that the plates be removed. Fifty cases have been traced, the end-results being very satisfactory. In the cases in which both the tibia and fibula were fractured, I have found it necessary to plate only the tibia. There were three cases in which the fibula was broken in two different places. If the tibia is correctly approximated, the fibula will usually be found in reduction. Of the seventeen cases in which it was found necessary to remove the plate, eleven were compound fractures of the tibia, two, simple fractures of the tibia, two on the femur, and two on the clavicle. Where the plate can be buried and well covered with muscles, few plates will necessitate removal. In three cases (femur), the plate broke at the junction of the bar and first screw hole. The condition was early recognized in two cases, the bones being replated, no injurious effect resulting. In the third case, the plate broke some time after the seventh day, the condition not being recognized until the tenth week. There was an angular deformity, with large callus, with good bony union. There was slight interference of function. I have been able to collect twenty cases in which the plate has broken. In order that this mechanical and structural weakness may be overcome, a new vanadium steel plate, patterned after the standard eye-bar (used in bridge construction), has been designed. This plate will withstand, without breaking, any reasonable strain placed on it.

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CONCLUSIONS

1. Fractures of long bones should be treated by the open method and the bones plated, if it is found that reasonably accurate approximation cannot be secured by splints, extension and other mechanical appliances.

2. There is no evidence to justify the assertion that the presence of a foreign body is the exciting cause of rarefying osteitis.

3. There would be fewer cases of non-union if the faulty approximation were early recognized and corrected.

4. It is very necessary to have the proper operating equipment and to exercise a most rigid technic. The periosteum should be preserved and tissues handled with delicacy. The operation should be done quickly; thoroughness, however, should not be sacrificed for speed.

5. The uncertainty of continuous approximation during convalescence, caused by restlessness, delirious patients, or accidents, is obviated by the use of plates.

6. It will be found necessary to remove the plates and screws in the majority of the compound cases, the plate causing sufficient irritation to allow of the persistence of a small sinus.

I firmly believe that there is a large field of usefulness for the steel bone plate. Its use will have to be delegated to those whose experience renders such operative work reasonably safe and certain, in order to prevent many of the failures which have happened in the past, and which were a reproach to the profession. They have been forgotten or excused because no better results were obtainable. This excuse will not hold good to-day. The question of operation must be based on personal experience and judgment.

With the advent of the stereoscopic *x*-ray plates, we have learned many of the shortcomings of the former method of interpreting plates. The accurate reduction of fractures is becoming more exact and we, as a profession, will be held responsible for many of the defects due to faulty judgment and treatment, if the present treatment is not kept abreast of modern surgical advances.

Recent experiments prove beyond all doubt the superiority of vanadium steel over the high carbon steels formerly used in the manufacture of bone plates. I have collected reports of twenty cases in which the high carbon plates have broken at the weakest point, i. e., junction of cross-bar and first eye.

A new vanadium steel bone plate has been designed which overcomes the mechanical and physical weakness of the old plates. It combines maximum strength with minimum of steel.

A self-tapping machine screw should be used in place of the wood screws heretofore used, on account of the added strength and mechanical advantages gained. Many of the failures of bone-plating operations have been due to lack of consideration of the mechanical features involved.

NOTE.—Since the above article was written, twenty-one additional patients have been operated on with uniformly good results, making at total of seventy-six cases.

Carnegie Building.

A CASE OF ASTHENOBULBOSPINAL PARALYSIS (MYASTHENIA GRAVIS)

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That rare disease known as myasthenia gravis is one in which there is a curious train of symptoms, the chief characteristic being a peculiar exhaustion which is confined to the voluntary muscular system, and which is aggravated by repetition of functional acts, the asthenic muscles being those that have generally been used the most.

This species of weakness does not necessarily end fatally, unless it be due to some serious lesion, but the prognosis on the whole is bad. There are some patients who have been apparently rapidly cured, although this sometimes seems incredible when we take into account the general and appalling disturbance of function; and it is probable that when lost sight of they have relapsed.

There are several forms of myasthenia gravis, the most common and important of which is the bulbar variety.

As Mills[1] has pointed out, certain cases have been described as "asthenic bulbar paralysis," and others as "asthenobulbospinal paralysis" with reference to the relative predominance of symptoms due to the exhaustion of the bulbar or spinal motor centers. He refers to such examples as does Paul,[2] who reports an interesting history. To the same form of disease Sir William Gowers,[3] in 1902, applied the term "myasthenia bulbaris," presenting three well-described cases.

1. Med. Fortnight., St. Louis, June 26, 1905.
2. Boston Med. and Surg. Jour., clxii, 281.
3. Brit. Med. Jour., May 24, 1902

Naturally there is a difference in the onset of symptoms in the two forms, there being ophthalmoplegia, paralysis of the levator palpebrarum, and orbicularis, the masseters, zygomatic and risorius muscles, as well as those of the palate, which symptomatize the bulbar variety, while the spinal is ushered in by an asthenic condition of the muscles of the trunk and extremities.

Such paralysis is rarely symmetrical, and there may be a great variation in the susceptibility to overexhaustion. In most of the important cases the bulbar symptoms are coexistent with those presented elsewhere, or closely follow them.

Variable and inconstant manifestations consist in the behavior of the reflexes, and the muscular susceptibility to electrical stimulation. In a fair proportion of the cases the electrical reactions described by Jolly may be observed, and these consist in the lessened irritability of the muscle after moderate electrical tetanization, or the failure to contract after repeated contact. So far as the reflexes are concerned there are some cases in which the activity of the knee-jerks is either diminished or absent, but as a rule they are unaffected or even exaggerated. In more than one example the cremasteric and abdominal reflexes were absent. It has been found when the reflexes were present that repeated local tapping had no effect in diminishing their activity.

Such negative symptoms as absence of fundal changes, conservation of pupillary activity, absence of anesthesia and other sensory phenomena are to be regarded. Atrophy is never found, nor is muscular fibrillation, and of course there is no reaction of degeneration. Ankle-clonus and Babinski symptoms are absent, while there is no paralysis of parts supplied by the levator labii superioris, the hypoglossus, vagus and glossopharyngeal nerves. There is an absence of hysterical symptoms in true cases, although the latter have been occasionally found in connection with myasthenia gravis, and Mills has reported such symptoms in one case. Paul regards the regurgitation of fluids as a symptom only of the true disorder, and he thus distinguishes it from hysteria.

Up to recent times little has been known regarding the morbid anatomy of myasthenia gravis, but we are indebted to the interesting investigations of Mandelbaum and Celler,[4] who have collected and analyzed the reported cases of a number of observers, among them Senator, Oppenheim, Burr and McCarthy, Link, Fujoni, Liefman, Eisenlohr, Jolly, Hun, Buzzard, Marburg, as well as many others.

The first-named assert that the disease is due more often to a neoplasm or other lesion of the thymus gland which probably gives rise to toxemia, while in nearly all well-observed cases there is a lymphocytic infiltration of the muscular fibers, the adrenals, liver, kidneys and thyroid, which is not the result of an inflammatory reaction. In one case there was chromatolysis of cells in the medulla and pons, but it would seem as if the affection had really some direct association with lesions of the thymus.

The following case is one which is of interest because of the improvement that followed treatment with the thymus gland.

Patient.—J. L., a girl, aged 14, was brought to me by her father during the spring of 1903. She was a native of the island of San Domingo and her parents were double first cousins. She was one of four children, one of whom died at the seventh month from gastro-enteritis, while the second died in her sixth year, probably from acute ascending paralysis. There is no family history of alcoholism, tuberculosis, or disease of the nervous system; the father appeared to be a healthy, vigorous man.

History.—The patient, who was large for her years, was quite well until two years previously, and had had no infantile disorders of moment. About this time her present trouble began in the lower extremities, there being difficulty in flexing the right thigh, and at the same time there was some weakness of the upper extremities. The child, who was precocious and somewhat of a composer and pianist, a few months later found difficulty in striking the keys of the piano. The third and ring fingers of the right hand were first affected so that she could not extend them. Six months later both arms became weak, and at the same time there was some return of power in the right lower extremity which at present is not so weak as the other side. In the beginning there was drooping of both upper eyelids, and a history of pain in the back of the head, and in both arms and legs. These pains now occasionally recur but seem more in the nature of an ache. There is no anesthesia of any kind.

Examination.—At the time of her visit there appeared to be a general weakness manifested in the performance of every voluntary act, which increased with repetition, but on the right side it predominated. The left hand was unaffected except that it was impossible to adduct the thumb. There had for a year past been some weakness of the orbicularis oris and the masseters. This condition and embarrassment in the use of the tongue which seemed to be moved awkwardly and with difficulty, although it was not paralyzed, produced a difficulty in eating. Another result of this weakness was that her speech was clumsy and ataxic. There was some drooping of the lower lip so that there was slight escape of saliva and when she swallowed it was common for liquids to escape from her nose. When the tongue was protruded it deviated slightly to the right side. The facial muscles were atonic, and there was no play of expression; she could not whistle and when she attempted to smile there was some weakness more apparent on the right side and depression of the corners of the mouth. There was distention of the alæ nasi. The double ptosis gave the patient a sleepy expression, and when she slowly opened her eyes, or they were opened by others, the left eyeball was found to be drawn upward and inward; there was at times diplopia. Her voice was more feeble than formerly. When lying down or sitting she could not arise without assistance, all the muscles of the back appearing to be the seat of weakness, while the weakness of shoulder muscles was shown in her inability to bring her hand to her face; in fact, she sometimes could not raise either arm. She could walk but a short distance and rapidly tired. It was noticeable that the muscles used most were those soonest fatigued. There appeared to be weakness of the right anterior tibial muscles, and some apparent spasm of the right soleus, and of the left to some extent. There was resulting spasticity of both legs and a titubating walk, the patient making contact with the ball of the feet; this disappeared at times. There did not appear to be any muscular hypertrophy or atrophy of the lower extremities, but there was a suspicious flatness of both deltoids, suprascapulæ and triceps; both knee-jerks were gone, superficial reflexes present, no ankle-clonus; other organic functions were unimpaired; no myasthenic electrical reaction; no reaction of degeneration. The pulse was always quick, ranging from 70 to 90.

Treatment and Course.—After her return to the West Indies, I from time to time received reports from the patient's father which were not altogether encouraging, although on the whole her condition was greatly ameliorated by treatment, which was more or less empirical.

I had at first prescribed thyroid extract with very bad results, but after taking into consideration the theory that the disease was due to some affection of the thymus, in 1907 I prescribed 5 gm. of thymus extract thrice daily with apparent immediate improvement and this was continued. The report on April 10, 1910, showed that she was able to walk 150 yards, but that in exceeding that distance she became fatigued, her hands and feet became cold, and there was some palpitation. She could raise her arms naturally and could dress

4. Jour. Exper. Med., 1908, x.

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her own hair. The movements of the shoulder are perfect. Her eyes are more open than before treatment, except that when she focusses them to read or write she feels pain in the right eye. The fingers are better. She can play the piano, but not with the ease she had before her illness. She has occasional pain in the neck and back of the head, and when she walks she has pains all through the body. She still has difficulty in masticating and swallowing, but less than before. She is less tired than she used to be. She retains her saliva. Her tongue is straight; expression normal; voice stronger. She is still lame; and again feels occasional pains in the head (not always). She often has cold feet and hands, and pains in the body on awakening.

She sent me a sonata composed by herself and wrote a well-expressed and legible letter. It may be stated that at no time has she shown any mental deterioration; on the contrary she has been a precocious, bright young woman and speaks two or three languages. I have had no occasion to suspect hysteria, but the complication of minor sensory symptoms and the spasticity even on the first occasion suggested an unusual syndrome.

It will be seen that the patient has survived for eleven years and has improved; I know of no case of the kind.

It would appear that a sister of J. L. died of undoubted acute ascending paralysis, and this may have some significance. That the latter malady is due to a toxemia, there can be no doubt, and it is possible, although I have not heard of such findings, that there may be some hypertrophy or disease of the thymus. I have reported elsewhere[5] an example of a recurrent endogenous toxic psychosis, and since its publication the patient died from a well-marked Landry disease which was observed as well by the late E. G. Janeway, and by Gilman Thompson. Unfortunately, no autopsy could be made, so that I was unable to confirm my suspicions.

The variations and recurrence of symptoms in many of these cases, and the behavior of my own case under the administration of an extract of thymus gland, naturally raises the question whether the disease may not have had such an origin.

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"GAS ON THE STOMACH" *

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The subject of this paper is in quotation marks, for this popular but inelegant phrase comes as near expressing my subject as any I can find.

In the beginning, let us consider what gas or gases are found in the stomach, although this has been investigated and the knowledge gained has resulted in little or no good. Observations have identified carbon dioxid, hydrogen, methane and acetylene, but in a vast majority of instances simple atmospheric air alone is present. It is only in the presence of true fermentation that carbon dioxid and other gases are found, and this fermentation takes place only when stasis is present.

Usually the gas, as I say, is atmospheric air swallowed with food, and this is its source in nine cases out of ten—yes, in ninety-nine out of a hundred. It is still a common practice among physicians to allow patients to think that food lies in the stomach and ferments and that this is the cause of the gas. At any rate, this is invariably the belief of our patients.

As result of ten years' observation of this condition the following is, to my mind, more nearly the case. In the first place, one cannot help swallowing a good deal of air with his food and drink. As a result of peristaltic action of the stomach and of the breaking down of the food by the gastric juice this air is liberated and accumulates in the upper or cardiac end of the viscus. Now, in a healthy person with normal muscular tone the cardiac orifice is not tightly closed and is easily forced open by a small accumulation of gas. This gas rises through the esophagus and finds its way out of the mouth or nose, attracting little or no attention even from the subject himself.

Some of this air may be absorbed through the walls of the stomach, although this is probably not the case. A small part of it may also pass through the pylorus with the food and be absorbed through the intestinal walls.

The above is the course of things in a healthy person. Now, when belching is a symptom of gastric or general disease, the course of things is entirely changed. I do not believe any more gas enters the stomach than in the healthy person, nor do I believe any more is expelled. In a vast majority of these cases a nervous hyperchlorhydria exists and these two words will explain the whole thing. The oversupply of hydrochloric acid in the stomach juice irritates the walls of the organ. In fact, this symptom begins to trouble the patient as soon as an excess of hydrochloric acid appears after a meal, and probably at first it is this discomfort (of the excess of acid) which is thought to be caused by the presence of gas.

This annoying symptom very rarely occurs except in nervous patients. The nervous or muscular hypertension holds the cardiac and pyloric openings tightly closed, the stomach-walls being irritated by the presence of the excess of the free acid. Hence, the cardiac opening will not relax easily and an accumulation of air takes place in the upper end of the stomach, as I have said above. Because this is in the bony chest it quickly gives rise to disagreeable symptoms, crowding of the heart, palpitation and sense of fulness and dyspnea.

In most cases, also, the presence of gas in the stomach is evident by percussion over the organ and the fulness and pressure symptoms in the epigastrium.

When this accumulated air forces its way through the cardiac sphincter it naturally attracts the patient's attention, both because of its quantity, and especially because the subject has his mind on his digestive tract and is ready to notice every symptom—just as the neurasthenic often notices and is annoyed by a perfectly normal beating of his heart.

Fearsome as it may be, this accumulation of gas is in no way dangerous, except in elderly patients in whom arteriosclerosis, some heart lesion, or some other serious condition exists and is complicated by the flatulence. Then we may have a fatal case of "acute indigestion."

I do not consider all cases in which we have much "gas on the stomach" as having this explanation. There are, of course, many cases of stenosis of the pylorus with stasis, and dilatation of the stomach in which the food lies in the stomach and ferments (even in the presence of hydrochloric acid); but I believe these cases are much rarer than we think, and when we encounter this symptom there is no true fermentation as a usual thing.

In some diseased conditions of the stomach or the neighboring organs we have the discomfort attributed by the patient to gas on the stomach, and then efforts to get rid of it are made. Of course, belching is a volun-

5. Hamilton: Tr. Med. Soc. London, 1896, xix.

* Read before the College of Physicians of Pittsburgh, March 14, 1912.

tary act, and I have sometimes suspected that in the efforts to excite belching the air may be drawn into the pharynx or esophagus only and then expelled.

If we can liken a physician's mind to a vast store house of partially classified materials which he uses in his work, he must acknowledge that many of these imposing heaps which once served us so well (and which still awe our patients) should be searched over with an up-to-date lantern and for the most part discarded. I have tried to show the worn-out condition of one fact in the storeroom devoted to digestive diseases, although it is centuries old.

Another such, but more recent, is "gastric atony." The gas does not accumulate in the stomach because the walls are too atonic to expel it, but rather because the cardiac and pyloric gates are too tightly shut to permit its escape.

Now a few words as to treatment. Of course we want to relieve this distressing symptom as soon as possible. For this purpose I have used the alkalies (especially the laxative magnesia preparations) with great success. As this condition is so often the result of hyperchlorhydria the alkalies are indicated, and, of course, a suitable diet.

As I have tried to show above, it is not atony, but rather irritation which causes the accumulation of this gas in the stomach, therefore mild irritants or carminatives should not be given. They may temporarily relieve the symptoms (or rather the akali with which the carminative is combined may do so), but in the end would do harm rather than good. Sometimes this symptom is the chief complaint of a nervous patient, and the condition cannot be fully cured until the general health is restored.

To sum up:

1. Slight eructation of air after meals is perfectly normal.

2. True fermentation may be present in stasis, but this is comparatively rare.

3. It is unusual accumulation instead of excessive production of gas in the stomach which gives rise to this annoying symptom commonly called "gas on the stomach."

4. When gas on the stomach annoys a patient he usually is nervous and has too much acid. (Give him alkalies, proper diet and general treatment.)

5. Disease of neighboring organs may cause a full feeling, wrongly interpreted as "gas on the stomach."

Westinghouse Building.

GONORRHEA IN GIRLS: TREATMENT OF THREE HUNDRED CASES

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The average number of commitments per year to the State Training School for Girls in Geneva, Illinois, is 200, and of this number approximately 55 per cent. are infected with gonorrhea at the time of their entrance. This, of course, gives a very large total of cases, and, at the same time, affords an excellent opportunity for trying various treatments and estimating their relative values. The cases of gonorrhea which come to us show all degrees of severity, from the generally mild innocent infections to those virulent and often obstinate cases seen in the prostitute and habitual masturbator.

Immediately, on admission, a thorough physical examination is made of each girl, and a microscopic examination of the vaginal and cervical secretion or discharge. Slides are prepared and stained immediately with methylene-blue. They are then examined and if there is the slightest doubt as to the diagnosis another specimen is prepared and stained by Gram's method, and if morphologically typical Gram-negative diplococci are found in pus-cells the diagnosis of gonorrhea is made and treatment begun at once. Microscopic examinations are made of the discharges of these girls at least once a month, from the time treatment is begun until it is discontinued. Girls are kept under treatment for two months after all of the gonococci have disappeared from the discharges, so that we may be sure that the absence of germs from the slide is not simply accidental. After the discontinuance of the treatment, examinations are made once a month as long as the girls remain in the institution, and written records of the findings are kept.

Several methods of treatment and combinations of various methods have been used with these 300 cases. The majority of cases are subacute or chronic, and the infection is most frequently a cervicitis. A few of the girls have borne children, but they present no special feature except that the infection is a little more obstinate and has a much more marked tendency to extend into the tubes.

In giving the treatment, the speculum is used whenever possible; the work can be done much more thoroughly in this way. The smaller girls, and some of those with an undoubtedly innocent infection, cannot be treated in this manner, and it is these cases which present the greatest difficulty. Formerly these children were treated either with douches, hot saline or containing some antiseptic solution, as potassium permanganate or bichlorid of mercury, or with instillations of argyrol, or a 1 per cent. silver nitrate solution.

Here a word about the use of douches in general will not be out of place. After having used daily douches over long periods of time in many cases, our conclusion is that they are not only useless, but worse than useless. When used as the sole treatment, the infection lasts for many months and in several cases the condition was worse after this treatment than before. When used in connection with other treatments, douches effectually prevent the action of the other medication. The results seem to be the same regardless of what solution has been used in the douche. The little girls and those with innocent infections we now treat with vaccine alone, and except for a thorough daily cleansing of the labia no local treatment is given.

Instillations of argyrol and of 1 per cent. silver nitrate by means of long medicine droppers were not much better than the douches. For example, one 6-year-old child, a virgin, with what was known to be an innocent infection had been treated for sixteen months with semi-weekly instillations of 20 per cent. argyrol, after this for fourteen months with similar instillations of 1 per cent. silver nitrate, with no apparent improvement. Five months' use of the gonococcus vaccine caused the germs and the discharge to disappear entirely. For six months no germs could be found at any time and after that there was a mild recurrence which we are now treating with vaccine again. This child is an habitual masturbator. This and other similar cases, in which no effectual local treatment could be used, have demonstrated that for such cases vaccine is by far the best treatment we have at hand.

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The local treatment in those cases in which the speculum has been used is a thorough cleansing of the vagina and cervix with a cotton swab, followed by the application of the solution employed. This is repeated twice a week. The solutions made use of at various times have been silver nitrate, 4 per cent, pure ichthyol and silver nitrate, 25 per cent. to the cervix and 10 per cent. to the vagina, followed immediately by an application of petrolatum. The last-mentioned treatment proved too strong for many patients, so for one of the semiweekly applications a paste of iodoform in glycerin, 25 per cent., has been substituted. This last treatment, that is, silver nitrate 25 per cent. to the cervix and 10 per cent. to the vagina once a week, and the iodoform-glycerin application once a week, has proved to be the best of all the methods tried, and is the one used for all cases now under treatment. Silver nitrate, 4 per cent., and pure ichthyol applied to the cervix were found to be practically useless; some cases were treated continuously for two years without the germs being absent at any time from the discharge. Gonococcus vaccine when used alone did not prove entirely satisfactory; there seemed to be a general tendency to a recurrence after the use of the vaccine was discontinued. Vaccine when used in combination with either the 4 per cent. silver nitrate or with pure ichthyol gave the same general results as vaccine used alone, and the same tendency to a recurrence was present.

It might be well to add here that vaccine was used in all of our cases having a joint involvement with most excellent results.

TABLE SHOWING THE RESULTS IN THE TREATMENT OF 300 CASES OF GONORRHEA IN GIRLS

Treatment Used	No. Cases Treated	Time Required for Germs to Disappear		
		Least (Months)	Greatest (Months)	Average (Months)
4 per cent. silver nitrate...	120	2	24	11
Vaccine alone	17	1	5	4
Vaccine and ichthyol.....	101	1	8	4
Vaccine and 25 per cent. silver nitrate	30	17/30	4	2
25 per cent. silver nitrate.	32	10/30	4	2

In all, 300 cases have been treated in the last three years: 120 with 4 per cent. silver nitrate alone; seventeen with vaccine alone; 101 with a combination of vaccine and a local treatment of pure ichthyol; thirty with a combination of the 25 per cent. silver nitrate and vaccine; and thirty-two with only the strong silver treatment.

When the vaccine is used in combination with the strong silver nitrate (25 per cent.) the results are excellent, and in no case has there been a recurrence while the girl was under observation, this observation being never less than three months and frequently extending into years. Whether this is really a cure and will be permanent it is impossible to say; the chances are that the glands of Bartholin still harbor latent gonococci and that any unusual irritation will cause them to become active. We have, however, no definite and accurate information as to this. In those cases in which a vigorous local treatment alone has been used, the results have been exactly as satisfactory as when this treatment has been combined with the vaccine, and as the use of vaccine is very expensive, this fact is an important one, as it makes a thorough treatment much cheaper and correspondingly more likely to be given.

CONCLUSIONS

1. For cases in which the speculum can be used, semiweekly treatments, once with 25 per cent. silver nitrate to the cervix and 10 per cent. to the vagina followed by an application of petrolatum, and once by a 25 per cent. paste of iodoform in glycerin have given the best results. This treatment is not improved by the use of gonococcus vaccine.

2. For little girls and in virgins with an innocent infection, local cleanliness and the use of gonococcus vaccine give the best results. Because of the tendency to recurrence of the infection, however, this is not entirely satisfactory.

3. Vaccine is of the greatest use in cases with joint complications. Here it is almost invaluable.

ABDOMINAL PAIN AS AN INITIAL SYMPTOM IN TYPHOID, WITH SOME STATISTICS ON ITS CAUSATION

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One occasionally hears the statement that typhoid may have abdominal pain as its initial symptom, but I have never seen any amplified discussion of this interesting and important fact, or any definite statement as to the causation of the pain.

It is with this in view that the following report is made on the subject of abdominal pain as an initial symptom, especially with reference to its presence in affections of the gall-bladder, complicating typhoid.

The chief painful complications which may first call attention to the typhoid are: (1) acute catarrhal cholecystitis; (2) typhoid appendicitis; (3) intestinal perforation; (4) simple colic from gaseous distention (unimportant).

I. CHOLECYSTITIS

In the last 1,815 cases of typhoid occurring in the medical services of the Presbyterian Hospital, between 1897 and 1911, there were twenty-four cases of complicating, acute, catarrhal cholecystitis. In two of these the initial symptom of the typhoid was acute abdominal pain, which, together with two cases occurring in the practice of Dr. E. H. Pershing of Woodmere, L. I., one of which I saw in consultation, made a total of four cases in which pain was the initial symptom.

Before giving the general statistics of the entire series in which the gall-bladder was first involved, it seems worth while to give short case histories of the cases in which pain was the initial symptom.

CASE 1.—P. D., aged 43, was apparently in usual health when he began rather suddenly to have pain referred to right hypochondrium where there was also tenderness. This continued throughout entire course of the typhoid which dated from the onset of the pain. Gall-bladder was only indefinitely made out on account of rigidity of muscles. Liver was enlarged.

CASE 2.—D. K., aged 11, was perfectly well and went swimming; while in the water he was seized with severe abdominal pain in right hypochondrium. He was then ill at home with fever for fifteen days before he was admitted to the hospital. Gall-bladder was not felt. Liver was not enlarged. Pain lasted twenty-three days, severe at first, later less always accompanied by tenderness. Case ran a typical typhoid course.

CASE 3.—F. B., aged 21, had been in usual health, but keeping irregular hours for sleeping and eating. He pushed a roller over the tennis court one morning and on his way to the house, directly after, was seized with severe abdominal pain which was referred to left anterior lumbar region and upper abdomen. Pain and exquisite tenderness soon localized over region of liver and gall-bladder; here it persisted throughout a mild typhoid and a relapse. A short period of anuria, followed by urine in which were a few red cells, makes it seem possible that the lumbar pain was due to renal colic. The diagnosis of cholecystitis was first suggested in this case by Dr. Forbes Hawkes. The temperature apparently began only at time of seizure. Gall-bladder and liver were both enlarged and tender. Leukocytes varied from 8,000 to 12,000 per cubic millimeter. The initial symptoms were so severe that a diagnosis of perforating duodenal ulcer was considered.

CASE 4.—Reported by Dr. E. H. Pershing. C. S., had been perfectly well when he was suddenly taken with very severe pain in the upper abdomen, was almost in collapse. He was seen by the late Dr. A. J. McCosh in consultation, who first diagnosed acute perforating duodenal ulcer. As some of the symptoms were a little confusing it was decided to wait a few hours before operating. The pain soon localized over gall-bladder and patient went through a typical typhoid course.

All of these patients made a perfect recovery.

The summary of the points of interest about the twenty-six cases of acute cholecystitis occurring in the course of typhoid is as follows:

1. Ages range from 11 to 62 years. Eleven males and thirteen females.

2. No patients gave definite history of previous trouble. One had had a feeling of epigastric fulness after meals, with indigestion and vomiting two months before; another gave the same history sixteen months before. There was no tenderness in either.

3. Sixteen were classed as mild, eight as severe, two as moderate.

4. Pain was the initial symptom in four cases.

5. In the other twenty-two cases the pain with evidence of gall-bladder involvement came on from the seventh to sixty-fifth day of the typhoid. Average on the nineteenth day.

6. The symptoms lasted from two to fifty-four days, most of them for only a few days, i. e., two to four days.

7. In all, the pain was referred to the region of the gall-bladder and in practically all there was local tenderness.

8. In eleven cases the gall-bladder could be definitely palpated, in five it was uncertain and in the remainder it was not palpable.

9. In the eleven positive cases all but two had enlarged and palpable livers as well, apparently a distinct association.

10. There was jaundice in four cases.

11. As to fever, cases in which the cholecystitis came on during the febrile period showed little additional elevation of temperature except in some of the severe cases. Those that developed the complication during convalescence showed a distinct rise, in most of the cases, from 1.5 to 3 F.

12. In nine cases in which the leukocytes were counted when the complication developed during the typhoid, seven showed no change in leukocytosis. Two showed a rise to 10,000 and 20,000, although these were classed as clinically mild cases.

13. Four patients were operated on with the following results:

A. Hydrops with stone in cystic duct. (No previous history of trouble.)

B. Distended gall-bladder and adhesions to stomach. (No previous history of trouble.)

C. Gall-bladder enlarged, not opened.

D. Gall-bladder enlarged, aspirated, no culture made.

Patient A died. The patient in another case died of hemorrhage and showed inflamed gall-bladder with calculi in it.

II. APPENDICITIS

In this series there were three cases of complicating acute appendicitis, in one case of which the abdominal pain from this cause was the initial symptom. Two other similar cases were reported orally to me by Dr. F. P. Solley, of St. Luke's Hospital, New York, making a total of five cases.

In the five cases of acute appendicitis there were no diagnostic points of especial interest. In three of the cases the inflammation of the appendix was the initial symptom, two of them being operated on, after which they proceeded regularly with their typhoid. The third was milder.

In the other two, one developed acute symptoms on the thirtieth day and the other on the forty-first day of their typhoid, showing that it is an early and late possible complication.

III. INTESTINAL PERFORATION

In the 1,815 cases of typhoid fever referred to there were twenty-six complicated by perforation of the intestines. In no one of these was the perforation the initial symptom of the disease, although one occasionally finds the statement in text-books that such perforation may be the first recognized symptom, particularly in the ambulatory type. This is undoubtedly true, but of rare occurrence.

66 West Fifty-Fifth Street.

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NEW OCCLUDING URETERAL CATHETER AND CYSTOSCOPES FOR FUNCTIONAL RENAL TESTS

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The instruments were devised by me to collect the total output of urine from each kidney during an examination to test the capacity for work of each.

The catheters heretofore employed for this purpose have not been satisfactory. Those with bulbous enlargements at the ureteral end do not always succeed in entering the canal and they do not always completely plug it even when they do enter. Those having a small inflatable rubber balloon at the ureteral end which can be inflated after the catheter is in position are open to the objection that the rubber soon deteriorates.

The commonest method has been to pass, with a cystoscope, two No. 8 French catheters, one on each side, and to trust that there will be no leakage alongside the instrument. Leakage is detected by means of a catheter laid in the bladder. Larger double catheterizing cystoscopes which might take larger catheters are not feasible on account of their size. With a No. 8 French catheter in each ureter leakage alongside the instrument occurs in 48 per cent. of the cases. It amounts to 20 c.c. or less in 21 per cent.; 20 to 50 c.c. in 8 per cent.; 50 to 100 c.c. in 3 per cent., and 100 c.c. or more in 16 per cent. These figures are for the two-hour polyuria test in which the catheters remain *in situ* during that length of time.[1]

1. In the sixteen cases in which the leakage was 100 c.c. or more the figures were: 134 c.c., 204 c.c., 107 c.c., 162 c.c., 220 c.c., 250 c.c., 128 c.c., 132 c.c., 312 c.c., 158 c.c., 150 c.c., 180 c.c., 134 c.c., 116 c.c., 208 c.c., 134 c.c.

The importance of collecting the total output of urine from each kidney cannot be overestimated in functional renal examination. If we would deduce anything of value from delicate tests we must have the exact amount. It is sufficient for our purpose if we can be sure that we can collect the total amount from a single kidney, for by laying a catheter in the bladder we shall get the urine from the other side. This will be especially appreciated in those cases in which, from pathologic, anatomic or congenital causes, but one ureter can be catheterized. I have known a single ureter to be catheterized in a case of single kidney; leakage has occurred alongside the catheter; the urine found in the bladder was taken for urine from the opposite kidney; the only kidney was removed and the patient promptly died.

The catheter devised by me[2] has a length of 90 cm. It has a caliber of No. 11 French at its outer end and this caliber is maintained to within 20 cm. of the

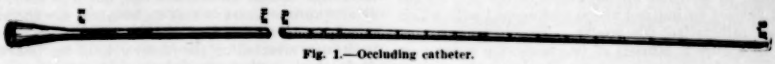

Fig. 1.—Occluding catheter.

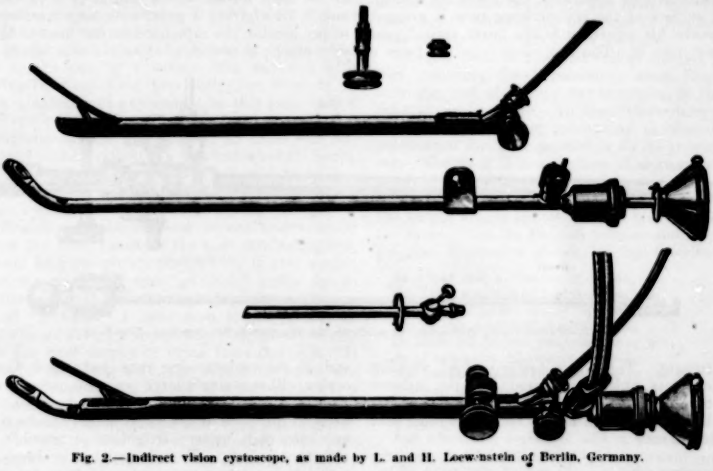

Fig. 2.—Indirect vision cystoscope, as made by L. and H. Loewenstein of Berlin, Germany.

opposite end. From this point it tapers gradually and progressively to the tip of the instrument where it has a caliber of only No. 6 French. This end is open and has a flute tip; below the tip there are two additional openings through which urine may enter. It is easy to see that, once introduced, the catheter fits into the ureter exactly like a conical cork into the neck of a bottle and completely plugs the canal, so that all the urine coming from the kidney must go through the instrument. A catheter laid in the bladder collects the urine from the opposite side. There are three more decided advantages attained by the use of this catheter: 1. The capacity of the renal pelvis may be exactly determined by injecting measured liquid into it through the catheter. 2. Strictures of the lower end of the ureter may be safely and easily dilated. 3. A rapid diagnosis of the following conditions can be made: (a) solitary kidney, (b) kidney inactive from former disease, (c) blocked ureter. Solitary kidney is diagnosed by finding urine on the catheterized side and none in the bladder; we should expect no history of renal pain or other symptoms on the side in question; we should also not be surprised at a smooth bladder without an opening in the spot where normally the ureteral orifice is found. A kidney, inactive and non-secreting, is diagnosed by the previous history. If the patient has had renal pain, if there has been tumor, and especially if there has been abundant pyuria in former times, we may diagnose some suppurative process, very commonly tuberculosis, which has gradually destroyed the kidney and has rendered it inactive. Blocked ureter may be of the acute or the chronic variety. The active form is usually due to stone. Here the fulminating symptoms, colic, general disturbance and local tenderness leave no doubt as to the diagnosis. In the chronic form, also generally due to stone, the *x*-ray will be of assistance; also a history of previous pain in the kidney, together with other localizing symptoms.

When the occlusive catheter was first devised it was thought that it could be advantageously used by adopting Albarran's method of first introducing into the ureter a small flexible whalebone bougie, and subsequently slipping the catheter over this as a guide after removing the cystoscope. In my experience this was not satisfactory for the reason that it was not possible to see what was going on in the bladder; the catheter would not enter the ureter and buckling occurred; there was consequently danger of lacerating the mouth of the ureter. This scheme was abandoned and it was thought best to devise special instruments to take the No. 11 French occlusive catheter.

The first instrument was made by Collin, of Paris.[3] It is nothing more than a Brenner instrument slightly

2. See Boston Med. and Surg. Jour., 1910, clxii, 745, and Berl. klin. Wchnschr., June 6, 1910, No. 23, p. 1091

3. See Presse méd., 1911, No. 10, p. 91.

modified by me. The catheterizing tube is made to take a No. 13 French catheter and it is further modified by having a smaller beak and a removable elbow at the ocular end of the catheterizing tube which serves to deflect the catheter as it enters the lumen. In the original Brenner model the catheter tube is straight and this brings the catheter close to the face as it is being introduced. With my instrument, which has a caliber of No. 29 French in one diameter and No. 17 French in the other, or about No. 23 French over all, one can enter practically all urethras, male and female. I have used it with success in both sexes. It is, however, particularly adapted to the female, though it can be used in the male provided there is no abnormality in the bladder such as hypertrophied prostate, etc. It will not prove serviceable in female bladders in which there is pronounced relaxed outlet with cystocele. It is easy of introduction and catheterization is very simple.

In order to overcome the objections of the first instrument I devised an indirect vision cystoscope,[4] with which one can catheterize any ureter. The instrument, as shown in Figure 2, consists of two parts, the upper part being the catheterizing apparatus, the lower the optical. The under surface of the catheterizing tube is grooved and the groove fits tightly into the lower optical part when pressed into it. The two pieces together form a single instrument. There is a toothed wheel working on a toothed plate which is soldered onto the catheter tube. By turning this wheel the upper or catheterizing part is made to slide at will on the lower or optical part in either direction.

When the instrument is to be introduced into the bladder the upper tube is made to slide by means of the screw toward the beak of the instrument as far as it will go; this makes its introduction into the bladder an easy matter. Once in the bladder, however, the screw is turned in the opposite direction; this causes the upper tube to slide toward the operator, and uncovers the prism in the optical part which is situated near the beak in the usual place. The field of vision is large, there being no obstruction to the rays of light from the sides of the cystoscope, as the whole catheterizing tube slides away from the lens below.

Catheterizing is performed in the usual way, by introducing the catheter into the catheterizing tube, which takes No. 11 French, and by causing the tip of the catheter to be deflected by means of the shutter, which has a separate screw for opening and shutting it, differing not at all from that in the latest models of cystoscopes. If desired, fluid in the bladder can be changed by removing the optical telescope and irrigating through the lower tube. The cystoscope as a whole is of No. 25 French in one diameter and No. 15 French in the other, making it about 20 French over all. It is easy of introduction in any normal urethra, male or female. Cleansing of the instrument is readily done by separating it into its component parts. One of the chief features of the instrument is that when the upper tube or catheterizing apparatus is removed from the optical part, the latter constitutes in itself a complete irrigating examining cystoscope of No. 15 French.

The last instrument to be described is one devised by the Wappler Company to take my catheters. It consists of two parts, an outer sheath, and a catheterizing and optical part combined; the latter fits into the former. The novel features of the instrument are these:

The vesical lens is at the heel of the instrument and not on top as in most indirect cystoscopes; this lens points directly downward toward the base of the bladder; the image is thus an indirect one, but it is made direct by appropriate lenses so that the observer sees the bladder exactly as it is; the shutter which deflects the catheter is likewise situated on the under side of the instrument, at the heel, instead of on top, as it is in most instruments, thus giving a great advantage over other cystoscopes because the catheter does not have to be deflected very much; by a system of rubber caps which fit on the end of the catheterizing tube just below the external ocular, either a single large occlusive catheter of No. 11 French can be introduced, or else two No. 7 French ureteral catheters of the usual design can be introduced, one into each ureter; irrigation is possible with the catheters *in situ*. To manipulate the instrument the catheterizing apparatus is removed from the sheath and an obturator introduced which closes the aperture at the heel. The cystoscope is now passed into the bladder, the obturator withdrawn, and the catheterizing apparatus armed with the catheter introduced. The ureteral opening is found and the catheter shoved into it. The catheterizing piece is now removed from the sheath and a small-sized simple catheter is passed into the bladder through the sheath to collect the urine from the opposite kidney. The sheath is withdrawn, leaving the ureteral and the vesical catheters in place.

I have used this instrument with satisfaction. It will serve to catheterize not only easy ureters, but difficult ones as well. It will be found excellent for prostatic cases, for the shutter will deflect the catheter so that it will enter at any angle. The lenses are such that they will reflect an image even when the object is directly on the vesical lens; it is thus an excellent urethroscope.

In the female there is no difficulty in introducing these catheters directly into the ureter by means of the

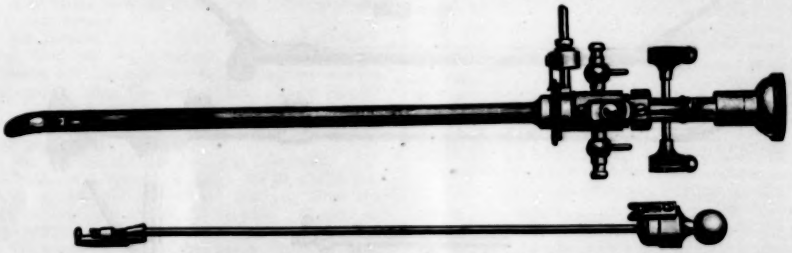

Fig. 3.—Catheterizing cystoscope, as made by the Wappler E. M. Company, New York.

4. Berl. klin. Wchnschr., 1911, xlviii, 716.

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ordinary tubular cystoscopes such as the Kelly, Pawlik, Garceau, Luys, etc. In the male, however, this is not very feasible.

I have tested these catheters and cystoscopes in fifteen different cases and have not failed to get the total output of urine from the kidney catheterized in any instance. The method of procedure in these experimental cases was as follows: An occluding ureteral catheter was passed into the ureter by means of one of the cystoscopes described. The catheter was gently and not too forcibly pushed into the lumen so that it fitted snugly in the canal. An ordinary rubber or metal catheter was laid in the bladder after the removal of the cystoscope. I have found it an advantage to have the vesical catheter perforated with many holes at the vesical end so as to collect the vesical urine with greater assurance. In the male a rubber or gum elastic catheter must be used. The catheter remained *in situ* a variable length of time, from a half hour to two hours and a half. In all cases at the conclusion of the test and before the catheter was removed, an injection of indigocarmin in strong solution, in amounts varying from 6 c.c. to 15 c.c., was made up into the kidney, and careful observation made of the ureteral orifice with a cystoscope, in order to see if there was a reflux of colored urine.

There was no reflux in any of the cases except one, and that was in the case of a woman who had had both ureters dilated some time previously for stricture in each. In a subsequent experiment in this same case a No. 11 French catheter was laid in each ureter and a control catheter laid in the bladder; no urine was collected by the control catheter in two and one-half hours, while an equal amount of urine was collected from each side by the ureteral catheters. This experiment shows how severe a test is the indigocarmin test for leakage. A No. 13 French occlusive catheter in one ureter would have given the same result in the case just mentioned, for it would have completely plugged the dilated ureter. In one of the cases there was "golf-hole" ureter due to long continued suppuration in the kidney above. It was the largest "golf-hole" I have even seen. A No. 13 French occlusive catheter completely plugged the ureter and gave the total output of urine from this side. It proved to be the better side, for almost no urine was obtained from the opposite kidney in which there was a large hypernephroma. Previous attempts to lay a catheter in this hypernephromatous side were unsuccessful, owing to an obstruction a few centimeters above the ureteral orifice in the bladder.

SUMMARY

I may fairly claim the following for the instruments:

1. The cystoscopes will take Nos. 11 and 13 French occlusive catheters.

2. With the No. 11 French occlusive catheter the total output of urine will be collected from one kidney when the ureteral orifice is normal. When the orifice is enlarged the No. 13 French occlusive catheter may be tried.

3. The capacity of the renal pelvis may be measured with accuracy with the catheter, this being the only instrument which will do this unfailingly.

4. It is possible to dilate with the catheter, on account of its conical end, strictures of the lower end of the ureter.

5. It is possible to diagnose with rapidity and ease, (a) solitary kidney, (b) kidney inactive from former disease, (c) blocked ureter.

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MEDICINE AS DEPICTED IN ENGLISH LITERATURE BEFORE THE EIGHTEENTH CENTURY *

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The very richness and inexhaustible nature of the literature from which material may be had, the innumerable subjects connected with medicine from which selection may be made, the various ways in which these may be treated have all contributed to render this dissertation one of more than ordinary intricacy.

Perhaps at the beginning a short digression may be permitted so as to review hastily the preparation of English literature preceding Chaucer's time. It was not until the fourteenth century that the language of English literature becomes so like the English of to-day that it can readily be understood. Before that time books were written in different kinds of English which are as strange as a foreign tongue, others in Latin and some in Norman-French. While Chaucer, who lived in the latter half of the fourteenth century, is thought of as the one author beginning this more modern period we must not forget that the literature of England stretches back six hundred years before his time.

Chaucer lived in a period full of interest and change just preceding the Renaissance, when England along with the rest of Europe was beginning to throw off the yoke of medievalism. In the "Canterbury Tales" we have one of the most interesting pictures of life and manners of this time painted in all its breadth and variety. The work is a collection of separate stories, supposed to be told by pilgrims who journey together to the tomb of Thomas à Becket at Canterbury. There rides the knight always honored for his bravery and after him the squire, then the English yeoman and so on until the pilgrim, "Doctour of Phisik," is thus described:

Ther was also a Doctour of Phisik,
In al this worlde was ther non him like
To speke of phisik and of surgerye;
For he was grounded in astronomye.
He kepte his pacient wondrously and wel
In al houres by his magik naturel.
Wel coude he gesse the ascending of the star
Wherein his patientes fortunes settled were.
He knew the cause of every maladye,
Were it of cold, of hete, or moyst, or drye,
And where they engendred, and of what humour;
He was a very parfit practisour.
The cause once knowen and his right measure,
Anon he gaf the syke man his cure.
Ful redy hadde he his apothecaries,
To send him drugges, and electuaries,
For eche of them made the other for to wynne;
Their frendshipe was not newe to begynne.
Wel knew he the old Esculapius,
And Deiscorides, and eek Rufus;
Old Ypocras, Haly, and Galien;
Serapyon, Razis, and Avycen;
Averrois, Damascen, and Constantyn;
Bernard, and Gatisden, and Gilbertyn.
Of his diete mesurable was he,
For it was of no superfluitee,
But of gret norishing and digestible.
His studie was but litel on the Bible.
In blue he clad was al and in sangwyn
Lyned with taffata and silke thin.
And yit he was but esy in dispence;
He kepte that he won in pestilence.

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For gold in phisik is a cordial;
Therefore he loved gold in special.

Chaucer's description of the English physician of the fourteenth century is not at all flattering. According to him he was a man addicted to astrology and magic, which entered very largely into his practice and brought him big fees, glib of speech with abundant assurance, in league with the apothecary to make the most out of his patients, indifferent in religious matters, avaricious to acquire and eager to keep. In his portrait of the "Doctour of Phisik" a good notion of the library of a medieval physician is given. The catalogue is a formidable one showing, if it is to be taken literally, that Chaucer's own knowledge of such literature was, for a layman, not inconsiderable, as we see the Greeks, the Arabians and the moderns or "neoterics" all represented. The closing couplet is a masterpiece of Chaucerian humor and refers to the prescribing of "gold" in sickness in ancient times. In the "Knight's Tale" a knowledge of drugs is shown when Palamoun, a gallant young knight, escapes from a seven years' stay in prison by drugging the jailer:

That soone after the mydnyght, Palamoun
By helpyng of a freend brak his prisoun,
And fleeth the citee fast as he may go,
For he had given drinke his gayler so
Of a spicerie and of a certeyn wyn,
With narcotykes and opie of Thebes fyn,
That al night though that men wolde him shake,
The gayler sleep, he mighte nought awake.

Spicerie was a wine made of spices and herbs used to disguise the taste of drugs. Evidently the gallant knight must have given his jailer a large dose. The opium of Thebes (*opium thebaicum*) was used a great deal in the thirteenth and fourteenth centuries and was prepared from the expressed juice of the poppy-heads. The older property of opium under "meconium" which was still in use consisted of an extract of the whole plant. Later in the tale is related a sharp encounter between two bands of knights:

Al were they sore hurt, and namely one,
That with a spere was pierced his brest bone.
To other woundes, and to broken armes,
Some hadden salves, and some hadden charmes,
Drugges of herbes and sage the doctours gave
To drinken, for they wolde their lyves save.

The carrying of salves and ointments to battle was always done by the Roman legions and no doubt originated with them. The same thing was done by these valiant knights, although some of them trusted to their charms or amulets. Others relied on the garden herbs and their decoctions. We are here reminded of the supposed healing efficacy of many plants by their popular names. Thus the Druids called the mistletoe "all-heal"; and the common yarrow was formerly termed "knyghton mẅfoil" and "soldiers-wound wort" because it was supposed to cure the wounds inflicted by a spear. Mention is made of sage as having special healing virtue. Evidently none of these remedies helped the dying knight, not even venesection, for a little farther on we read:

That neither veyne blood, ne any cutting,
Ne drynk of herbes may be his helpyng.

Nothing escapes Chaucer's satire, not even the failure of medicine to cure:

And certeynly where nature wil not wirche,
Farwel phisik; go bere the man to chirche.
This is the end; that Arcyte moste dye.

In Chaucer's time belladonna was evidently used as a narcotic. That its properties of producing sleep were known at this period may be gathered from a passage in the "Reeve's Tales":

To bed wente the doughter right anon;
To bedde goth Aleyn, and also Jon.
Ther nas no more, hem neede no dwale.

Dwale was an old name for deadly nightshade and was grown extensively in the monkish herb-gardens of medieval days.

In the "Nonne-Prestes Tale" Chaucer has left a faithful picture of the domestic medicine of the period in the character of Dame Pertilote. He tells us how in his time people took care of their health by attention to diet; how, when people were sick and doctors not handy, nor medicines to be had at the apothecary, the wise women were asked to prescribe and supply the requisite herbs and simples from their own store or garden:

A pore wydow, somewhat stooped in age,
Was whilom duellying in a narrow cotage,
Bisyde a grove, stondying in a dale. . . .
Hir dyet was according to hir cote.
Repletion had made hir never sik;
Ful modest diet was al hir phisik,
And exercise, and labour and singyng.
The goute stayed hir not in hir daunsyng,
The apoplexie shooke not hir heed;
No wyne drank she, neither whit ne reed; . . .
Now, sir, quoth she, whan we flee fro thise bcemes,
For Goddis love, tak thou som laxatyf;
On peril of my soule and of my lyf,
I counsel you the best, I wil not lye,
That bothe of coloure, and of malencolye. . . .
Though in this toun is non apotecarie,
I shal myself with herbes phisik you,
That shal be for youre helth I dar avow;
And in oure yerd the herbes shal I fynde,
The whiche have of her proprette by kynde
To purgen you bynethe, and eek above.
Forget not this, for Goddis owne love!
Ye be ful colerik of complexioun.
Beware the sonne in his ascencioun
Finde yow not replet in humours hote;
And if it do, I dar wel lay a grote,
That ye shal have a fever terciane,
Or elles an agu, that may be your bane.
A day or tuo ye shall have digestives
Of wormes, ere ye take your laxatives,
Of lauriol, century, and fumitory,
Or elles of elder berry, that growith thereby,
Of catapus, or of dogwood berrys,
Of yvy in our yerd, that mery is;
Pike hem up right as they growe, and et hem in.
Be mery, housbond, for your fader kyn!
Drede fo dremes; I can say no more.

For many centuries the apothecary got his stock in trade from the country about him, although a few of his compounds were imported from foreign lands. Denunciation of the introduction of foreign drugs was made by many of the early English writers. Conradus Herebachius, in his "Foure Bookes of Husbandry, as newely Englished by Burnaby Googe," sees in it not merely the greed of the merchant man, but the dire necessity of the druggist's shop. He writes:

Nature hath appoynted remedyes in a redynesse for al diseases, but the craft and subteltie of man for gaine hath devised Apothecaries Shoppes, in whiche a man's Lyfe is to be solde and bought, where they fetche their medicines from Hierusalem, and out of Turkie, whyle in ye meane time euery

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poore man hath the ryght remedyes growing in his Garden: for yf men would make theyr Gardens theyr Physitions the physicions craft wold soon decay.

In the villages his place was generally filled by a so-called "wise-woman" with a suspicion of witchcraft, or at least of uncanniness, clinging to her, who made all kinds of potions and infusions from the plants of the field or her own herb-garden. The patient here has consulted this kind of country housewife. He is threatened with fever and she gives him rational treatment by dosing him first with digestives and afterward with laxatives. An infusion of cherry-laurel leaves was an old digestive tonic and centaury, a common plant, was often used. Several of our plant-names have classic associations and this one was called after the centaur Chiron, who was famous for his knowledge of medicinal herbs and who instructed mankind in their uses. Fumitory was used as a tonic and in jaundice and the elder-berry still takes a place in domestic medicine. Catapuce—the old name for spurge—which has a bitter milky juice, was formerly used as a purgative, while gaitre or dogwood-berries and the herb-ivy were likewise used as laxatives and liver stimulants.

During the fourteenth century the apothecaries were incorporated with the grocers, but it was not until 1617, however, that they formed a distinct company under the control of the Collège of Physicians. The apothecary was merely a compounder of prescriptions and a vender of drugs. He had no training and his knowledge was gained by experience. How little the public esteemed him can best be judged from the figure he makes in Shakespeare's plays.

During the latter years of the fifteenth century and the early years of the sixteenth there was a universal awakening to important reforms. The practice of medicine was taken out of the hands of the priesthood, especially in England, by the institution of the Royal College of Physicians in London, in 1518. From that time there grew up a distinct profession whose members were compelled to undergo some kind of a preparation for the practice of medicine. If quacks and empirics still abounded, it was the fault of a credulous public who had ample means of detecting the invalidity of their claims. The surgeons in this era formed a distinct class from the physicians. They were incorporated, it is true, with the Barbers' Company, in 1540, but they had no statutory power like the physicians. The latter could by law practice surgery but the surgeon was not allowed to give internal medicines, even to promote the cure of external wounds. The bitter disputes between the physicians and the surgeons lasted for centuries, although gradually the line of demarcation between the two was obliterated. Nevertheless these were the days of the renaissance of arts and science. Great seats of learning had arisen at Bologna, Padua, Pisa, Montpellier, Paris and Naples. Anatomic inquiry made active and vigorous progress and such men as Vesalius, Fallopius, Sylvius and Fabricius became famous. The sixteenth century was a century of epidemics and pestilences and the great plague which swept over England and all Europe left the countries prostrated. In the cities and towns of England and Europe the very elements of sanitary science were unknown or neglected. A most realistic presentation of the visitation of the plague is given in Pepys' diary, the evidence of an eye-witness and a contemporary. The following selections will give some hint of the striking events of this terrible catastrophe:

June 7th, 1665—The hottest day that ever I felt in my life. This day, much against my will, I did in Drury Lane see two or three houses marked with a red cross upon the doors, and "Lord, have mercy upon us" writ there; which was a sad sight to me, being the first of the kind that to my remembrance I ever saw.

July 19th—Walked to Redriff, where I hear the sickness is, and, indeed, it is scattered almost everywhere. My Lady Carteret did this day give me a bottle of Plague water home with me.

On August 30 he writes:

I went forth and walked towards Moorfields to see (God forgive my presumption!) whether I could see any dead corpse going to the grave; but, as God would have it, did not. But Lord! how everybody looks, and discourses in the street of death, and nothing else, and few people going up or down, that the town is like a place distressed and forsaken

During the height of the plague, on September 6, by order of the Lord Mayor, great fires were kindled in all the streets, but a heavy rain fell and extinguished them:

September 6th—To London, and there I saw fires burning in the streets through the whole city, by the Lord Mayor's order. Thence by water to the Duke of Albemarle's (at Whitehall): all the way fires on each side of the Thames: and strange to see in broad daylight, two or three burials upon the Bankside, one at the very heels of another: doubtless all of the Plague; and yet at least forty or fifty people going along with every one of them.

The next day Evelyn notes in his diary:

September 7th—I went all along the city and suburbs from Kent to St. James's, a dismal passage, and dangerous to see so many coffins exposed in the streets, now thin of people; the shops shut up, and all in mournful silence, as not knowing whose turn it might be next: there perishing nearly 10,000 poor creatures weekly. I went to ye Duke of Albemarle for a Pest-ship, to wait on infected men, who were not a few.

A grimmer picture than his entry of October 16 is difficult to conceive:

October 16th—Walked to the Tower; but Lord! how empty the streets are and melancholy, so many poor sick people in the streets full of sores; and so many sad stories overheard as I walk,—everybody talking of this dead, and that man sick, and so many in this place, and so many in that. And they tell me that in Westminster, there is never a physician, and but one apothecary left, all being dead: yet there are great hopes of a great decrease this week. God sent it!

Against these pestilences medical science was virtually powerless until some centuries later. While it will be agreed that the sixteenth century was a century of epidemics it was also the century in which the science of medicine made its greatest progress. The pall of superstition was lifted, the world was astir and in Elizabethan England the same new feeling of life is the motive power back of the greatest creative period of her literature.

Without the foregoing summary of the state of medicine in the sixteenth century it would be difficult to form a good conception of what the characters of physician and surgeon mean in the Elizabethan dramas. In the dramas written by Shakespeare and his predecessors the physician and surgeon are often represented.

Elizabethan literature is rich in little treatises on subjects connected with health, diet, remedies or medicine in general. From one of these, the "Book of Simples," by William Bullen, a few specimen passages will suffice to give one an idea of the curious compounds used as therapeutic measures:

An Embrocation.—R. Of a decoction of mallows, violets, barley, quince seed, lettuce leaves, one pint; of barley meal, two ounces; of oil of violets and roses, of each, an ounce and a half; of butter, one ounce; and then seethe them all together

till they be like a broth, putting thereto at the end four yolks of eggs; and the manner of applying them is with pieces of cloth, dipped in the aforesaid decoction, being actually hot.

A Precious Water.—Take nutmegs, the nut called Doronike [doronicum, or Great Leopard's bane], setwall, galangal, mastike, long peper, the bark of pomintron, of mellon, sage, hazel, marjorum, dill, spiknard, wood of aloes, cubebe, cardamon, called graynes of Paradise, lavender, peniroyall, mintes, sweet catamus, germander, mulacampana, rosemary, stichades [stoechas?] and quinance, of each lyke quantity; saffron, an ounce and a half; the bone of a harte's heart grated, cut and stamped; and beate your spyces grossly in a morter. Put in ambergrice and musk, of each half a drachm. Distil this in a simple aqua vita, made with strong ale, or sackeleyes and aniseedes, not in a common styll, but in a serpentine; to tell the virtue of this water against colde, phlegme, dropsy, heaviness of minde, consuming of melancholy, I cannot well at thys present, the excellent virtues thereof are suteh, and also the tyme were too long.

In the "Castle of Helth," by Thomas Elyot, Knight (1541), we may lightly glance at the virtue of venesection:

Concernynge the lettynge of bloudde, these thynges folowynge, wolde be had in contynuall remembraunce, and be afore thought on.—The tyme of the yere must be specially marked. For in the begynnynge of sprynge tyme, it is beste lettynge of bloudde, as Oribasius saythe, and so doth continue, after the opinyon of Arnolde, unto the eyght calendes of June. Ætius affirmeth, that in wynter, or in a colde countrey, or where the persone is of a very colde nature, the veynes shuld not be opened.

Lastly, in an extract from "A Newe Booke entitled the Governement of Healthe . . . reduced into the forme of a dialogue for the better understanding of the unlearned," there is much that is profitable:

John. I pray thee, friend Humfrey, what is Physic? . .

Humfrey. Hippocrates in his book of Winds or Blasts, sayeth of Physic or Medicine, [that it] is but a putting into the body that which it lacketh, or taking from the body things superfluous. And although our life be short, yet the art of physic is long, because great numbers of things be in it, and requireth much study, labour and practice; and, first of all, it requireth much contemplation or knowledge, in studying good books, which is called Theorie. Secondly, the very effect of contemplation or study is *practica* or *activa*, which is doing of the things that learning has taught us repairing, amending, or preserving the bodies of men, women, and children, etc.

John. It seemeth to be a goodly science.

Humfrey. Herodotus saith: they greatly err that call it a science, for it is an excellent art in *doing* of notable things. And Science is but to *know* things.

That Shakespeare was fully acquainted with many of the popular notions prevalent in his day respecting certain diseases and their cures cannot be doubted. His many allusions to drugs and herbs and their uses, to anatomy and surgery is proof that he had read widely in the medical literature of the period. Whether some of this knowledge was gained after his daughter's marriage to John Hall, a physician, would make an interesting subject of inquiry. At all events, he has left many interesting particulars relating to medicine and drugs of bygone times which are very valuable in that they help to illustrate the history of medicine in past centuries. We have already shown that, at the outset, the position of the apothecary was a very humble one. He was simply a vender of drugs, of the properties of which he had but an imperfect knowledge. The description of the poor apothecary of his time in "Romeo and Juliet" testifies to Shakespeare's faithful observation of detail:

Romeo. I do remember an apothecary,—
And hereabouts he dwells,—which late I noted
In tatter'd weeds, with overwhelming brows,
Culling of simples; meagre with his looks,
Sharp misery had worn him to the bones:
And in his needy shop a tortoise hung,
An alligator stuff'd, and other skins
Of ill-shap'd fishes; and about his shelves
A beggarly account of empty boxes,
Green earthen pots, bladders, and musty seeds,
Remnants of packthread, and old cakes of roses,
Were thinly scatter'd to make up a show. *Act v., Scene 1.*

Such a man was as ready to sell groceries as drugs to his patients. The stuffed alligator was a part of an apothecary's shop until a recent period. Romeo enters after making considerable noise to rouse the old starved apothecary, and offers a bribe for the poison. He makes little secret of the purpose for which he wants it.

Romeo. Come hither, man.—I see that thou art poor:
Hold, there is forty ducats: let me have
A dram of poison; such soon-speeding gear
As will disperse itself through all the veins,
That the life-weary taker may fall dead,
And that the trunk may be discharg'd of breath
As violently, as hasty powder fir'd
Doth hurry from the fatal cannon's womb. *Act v., Scene 1.*

In Romeo's demand for a rapid poison that "will disperse itself through all the veins," the opinion does not seem to exist, as yet, that these rapid poisons could act on the nervous system.

The apothecary's reply:

Such mortal drugs I have; but Mantua's law
Is death to any he that utters them.

would show, on the contrary, that the poet's idea of the law respecting the sale of poisons was a severe one and much in advance of his time. The law in England then as regards the selling of poisons was extremely lax.

The touching for the "king's evil," as described in "Macbeth," was first performed by Edward the Confessor. The "king's evil" was a common name for scrofula in years gone by, because the sovereigns of England were supposed to possess the power of curing it without medicines, save only by touch. The doctor in "Macbeth" represents many famous physicians of the Elizabethan age in the belief that the king possessed this miraculous therapeutic power. Whether this was a true belief, merely politic or ignorance one can hardly say:

Malcolm. Comes the king forth, I pray you?
Doctor. Ay, Sir: there are a crew of wretched souls
That stay his cure: their malady convinces
The greatest assay of art: but, at his touch,
Such sanctity hath heaven given his hand,
They presently amend.
Mal. I thank you, doctor.
Macduff. What's the disease he means?
Mal. 'Tis called the evil:
A most miraculous work in this good king:
Which often, since my here-remain in England,
I have seen him do. How he solicits heaven,
Himself best knows: but strangely-visited people,
All swoln and ulcerous, pitiful to the eye,
The mere despair of surgery, he cures;
Hanging a golden stamp about their necks,
Put on with holy prayers: and 'tis spoken,
To the succeeding royalty he leaves
The healing benediction. With this strange virtue,
He hath a heavenly gift of prophesy;

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And sundry blessings hang about his throne,
That speak him full of grace. *Act iv., Scene 3.*

This reference has nothing to do with the progress of the drama but, no doubt, was intended by Shakespeare as a compliment to King James, who believed himself possessed of Edward's miraculous powers. One of the many forms of medical quackery was the practice of prescribing from the simple inspection of the urine. These charlatans were known as "water-casters" or "piddle-doctors," and by an old statute of the College of Physicians any member of the college was forbidden to give advice by this method until he had also seen the patient. Numerous broadsides and books were written condemning the practice in very strong terms. An allusion to this vulgar error occurs in the "Two Gentlemen of Verona," where reference is made to the urinal through which Speed supposes that all Valentine's symptoms are transparently visible:

Val. **Are all these things perceived in me?**
Speed. **They are all perceived without ye.**
Val. **Without me they cannot.**
Speed. **Without you? Nay, that's certain, for without you were so simple, none else would; but you are so without these follies, that these follies are within you, and *shine through you like the water in an urinal, that not an eye that sees you but is a physician to comment on your malady.*** *Act ii., Scene 1.*

Shakespeare gives a further reference to it in "2 Henry IV" (Act I, Scene 2), where Falstaff asks the page, "What says the doctor to my water," and again in "Twelfth Night" (Act III, Scene 4), Fabian, alluding to Malvolio, says: "Carry his water to the wise woman." This custom of "water-castings" is of ancient date and arose long before Shakespeare's time from a ban put on the medical vocations of the priesthood which prohibited them from making personal visits to their patients. The expedient of diagnosing and prescribing from simple inspection of the urine was thus resorted to. The present-day method of so-called "absent treatment" of the Christian Scientist goes the "water-caster" one better, for nothing is needed in the way of examination.

Before modern research placed at the service of the physician plants of healing virtue from every quarter of the globe, our forefathers made an immense use of the flora of their own land. The drugs and herbs mentioned by Shakespeare are mostly those cultivated by the housewife in her own garden or obtained from the hedgerows and the banks of streams, marshes, meadows and woodland glades. Her skill and experience were always at the service of her household and of dependants for miles around. The effects of some of these plants were sometimes disastrous to the fools who swallowed them, but the herbs most relied on had no such dangerous properties, and to this day are in use among the few herb-doctors who obtain a scanty livelihood in obscure corners of our cities.

The dialogue in "Cymbeline" between the queen and Cornelius the physician gives evidences of our poet's knowledge on the subject of poisons:

Queen. **Whiles yet the dew's on ground, gather those flowers;**
Make haste; Who has the note of them? . . .
Now, master doctor; have you brought those drugs?
Cornelius. **Please your highness, ay; here they are, [madam:**
But I beseech your grace, (without offence—
My conscience bids me ask:) wherefore you have
Commanded of me these most poisonous compounds,
Which are the movers of a languishing death;
But, though slow, deadly?
Queen. **I wonder, doctor,**
Thou ask'st me such a question: Have I not been
Thy pupil long? Hast thou not learn'd me how
To make perfumes? distil? preserve? yea, so,
That our great king himself doth woo me oft
For my confections? Having thus far proceeded,
(Unless thou think'st me devilish,) is't not meet
That I did amplify my judgment in
Other conclusions? I will try the forces
Of these thy compounds on such creatures as
We count not worth the hanging, (but none human),
To try the vigour of them, and apply
Allayments to their act; and by them gather
Their several virtues and effects.
Cor. **. . . Your highness**
Shall from this practice but make hard your heart:
Besides, the seeing these effects will be
Both noisome and infectious. *Act i., Scene 6.*

The physician distrusts his old pupil and suspecting her wicked intentions gives her a drug which will stupify and dull the senses for a time, but will not prove poisonous.

Cornelius. **I do not like her. She doth think she has**
Strange lingering poisons: I do know her spirit,
And will not trust one of her malice with
A drug of such damn'd nature: Those she has
Will stupify and dull the sense for a while:
Which first, perchance, she'll prove on cats and dogs;
Then afterwards up higher; but there is
No danger in what show of death it makes,
More than the locking up the spirits a time,
To be more fresh, reviving. *Ibid.*

The queen's scientific ideas were in advance of the age she lived in when she states her desire to try the physiologic effects of these deadly compounds on animals; but Cornelius saw through the apparent spirit of research and gave her less powerful drugs.

In the familiar pages from Shakespeare we find Henry IV addressing words of wise counsel to his son, Prince Thomas of Clarence:

King Henry. **Learn this, Thomas,**
And thou shalt prove a shelter to thy friends;
A hoop of gold, to bind thy brothers in;
That the united vessel of their blood,
Mingled with venom of suggestion,
(As, force perforce, the age will pour it in,)
Shall never leak, though it do work as strong
As aconitum, or rash gunpowder. *Act iv., Scene 4.*

Aconitum, or acointe, also known as monk's-hood from the peculiar shape of its blue flowers, and helmet-flower, or wolf's-bane, from its poisonous properties is a familiar plant in an herbaceous border. Its poisonous properties have long been known and the ancients poisoned their arrows with this venomous plant. On account of its rapid and deadly action, Shakespeare compares it to gunpowder. It is probably, too, alluded to in the following passage already quoted from "Romeo and Juliet," where Romeo says:

Let me have
A dram of poison; such soon-spreading gear
As will disperse itself through all the veins,
That the life-weary taker may fall dead,
And that the trunk may be discharg'd of breath
As violently, as hasty powder fir'd
Doth hurry from the fatal cannon's womb. *Act v., Scene 1.*

A plant frequently mentioned in the plays and involved in quite a cloud of myth and fable is mandrake or *mandragora*. The fancied resemblance of its root to

the human figure and the accidental circumstance of *man* being the first syllable of the word was responsible for the belief that no one could pull it from the ground without fatal consequences. An inferior degree of animal life was assigned to it and when uprooted it uttered a groan like a human being in pain.

Its virtues as a soporific were well known in early times and an allusion to them is made by Shakespeare in "Antony and Cleopatra," when the latter pathetically says:

> Give me to drink mandragora.
> *Charmian.* Why madam?
> *Cleopatra.* That I might sleep out this great gap of time
> My Antony is away. *Act i., Scene 5.*

In "2 Henry VI" it is supposed to cause death:

> *Suffolk.* Would curses kill as doth the mandrake's groan?
> *Act iii., Scene 2.*

And Juliet speaks of

> shrieks like mandrakes torn out of the earth,
> That living mortals hearing them run mad. *Act iv., Scene 5.*

This penalty was evaded if a string was attached to the root and the other end round a dog's neck and the dog hunted about until the root was extracted. Immediately afterward we are assured the fatal groan would discharge its whole malignity on the dog and the animal died.

The popular superstition as to bleeding dates back many centuries before Shakespeare's day. The doctrine of good and evil days was prevalent in the time of the Anglo-Saxons, and their manuscripts display the attributes of the days of the lunar month as connected with it, influencing either diseases or their remedies. Theodore, Archbishop of Canterbury, taught that "it is very dangerous to let blood on the fourth day of the moon, because both the light of the moon and the tides are on the increase." Hippocrates, in Section 6 of the forty-seventh aphorism, says: "Persons who are benefited by venesection or purging should be bled or purged in the spring."

This curious old tradition is alluded to by King Richard II:

> *King Richard.* Wrath-kindled gentlemen, be rul'd by me;
> Let's purge this choler without letting blood:
> This we prescribe, though no physician;
> Deep malice makes too deep incision;
> Forget, forgive; conclude, and be agreed:
> Our doctors say, this is no month to bleed. *Act i., Scene 1.*

In the sixteenth century bleeding and purging were usually the first therapeutic measures in case of fever and many other diseases. The well-known purgative properties of senna leaves were held in great repute by the old apothecaries. The drug was introduced by the Arabs into Europe about the ninth or tenth century and soon attained a reputable position in medical practice. Macbeth, in speaking to the Scotch physician, asks him:

> What rhubarb, senna, or what purgative drug,
> Would scour the English hence? *Act v., Scene 3.*

The foregoing will suffice to show that Shakespeare was fully acquainted with many of the popular notions of medicine prevalent in his day. It seems almost impossible for a modern mind to realize what was the condition of medical science before Harvey's discovery of the circulation of the blood. The man of science was more or less of an alchemist and the physicians were dealers in charms and love potions. If a man wanted bleeding he went to a barber-surgeon and if he required medicine he consulted an apothecary. The medicine of Shakespeare was the medicine as practiced by the physicians contemporary with him. In short, it was a medicine filled with teachings of Hippocrates, Galen and Paracelsus and not one based on clinical experience and anatomic knowledge.

We can hardly afford the time to dwell on Chapman, Middleton, Massinger and Marlowe, Shakespeare's fellow-playwrights, although there is no dearth of characters representing the medical profession in the plays of these better-known Elizabethan dramatists. Nevertheless, reference must be made to Ben Jonson, who after Shakespeare's death became the most prominent man of letters in England. Unlike Shakespeare, Jonson was not content to show the world of men and women as it actually existed, but thought that the poet's business was to point a moral and reform society and so ridiculed the abuses and fashionable follies of the time.

Mountebanks flourished in England during Jonson's time and in company with their attendant clown or zany, as he was called, traveled about the country in great state. Their chief object, however, was not to provide a free entertainment but to dispose of their nostrums to crowds which the entertainment brought together. Jonson gives a description in his comedy of "Volpone, or The Fox" of one of these itinerant "Merry Andrews," a title derived from the charlatan Andrew Boorde, the physician of Henry VIII. Says Volpone disguised as a quack:

> *Volpone.* Most noble gentlemen, and my worthy patrons! I have nothing to sell, little or nothing to sell. I protest, I, and my six servants, are not able to make this precious liquor, so fast as it is fetched away from my lodging by gentlemen of your city. O, health! health! the blessing of the rich! the riches of the poor! who can buy thee at too dear a rate, since there is no enjoying this world without thee? Be then not so sparing of your purses, honourable gentlemen, as to abridge the natural course of life—for when a humid flux, or catarrh, by the mutability of air, falls from your head into an arm or shoulder, or any other part; take you a ducket, or your chequin of gold, and apply to the place affected: see what good effect it can work. No, no, 'tis this blessed unguento, this rare extraction, that hath only power to disperse all malignant humours, that proceed either of hot, cold, moist, or windy causes— To fortify the most indigest and crude stomach, ay, were it of one that, through extreme weakness, vomited blood, applying only a warm napkin to the place after the unction and fricace;—for the vertigine in the head, putting but a drop into your nostrils, likewise behind the ears; a most sovereign and approved remedy; the mal caduco, cramps, convulsions, paralysies, epilepsies, tremor cordia, retired nerves, ill vapours of the spleen, stopping of the liver, the stone, the strangury, hernia ventosa, iliaca passio; stops a dysenteria immediately; easeth the torsion of the small guts; and cures melancholia hypondriaca, being taken and applied, according to my printed receipt. [*Pointing to his bill and his vial.*] For this is the physician, this is the medicine; this counsels, this cures; this gives the direction, this works the effect; and, in sum, both together may be termed an abstract of the theorick and practick in the Æsculapian art. 'Twill cost you eight crowns. And,—Zan Fritada, prithee sing a verse extempore in honour of it.
>
> *Nano sings.*
> Had old Hippocrates, or Galen,
> That to their books put med'cines all in,
> But known this secret, they had never
> (Of which they will be guilty ever)
> Been murders of so much paper,
> Or wasted many a hurtless taper;
> No Indian drug had e'er been famed,
> Tobacco, sassafras not named;
> Ne yet of guacum one small stick, sir,

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Nor Raymond Lully's great elixir,
Ne had been known the Danish Gronswart,
Or Paracelsus, with his long sword.

Volpone. Very many have assayed, like apes, in imitation of that, which is really and essentially in me, to make of this oil; bestowed great cost in furnaces, still, alembecks, continual fires, and preparation of the ingredients (as indeed there goes to it six hundred several simples, besides some quantity of human fat, for the conglutination, which we buy of the anatomists), but when these practioneers come to the last decoction, blow, blow, puff, puff, and all flies in fumo; ha, ha, ha! Poor wretches! And, gentlemen, honourable gentlemen, I will undertake, by virtue of chemical art, out of the honourable hat that covers your head, to extract the four elements; that is to say, the fire, air, water, and earth, and return you your felt without burn or stain. You all know, honourable gentlemen, I never valued this ampulla, or vial, at less than eight crowns; but for this time, I am content to be deprived of it for six; six crowns is the price, and less in courtesy I know you cannot offer me; take it or leave it, howsoever, both it and I am at your service.

Nano sings.

You that would last long, list to my song,
Make no more coil, but buy of this oil.
Would you be ever fair and young?
Stout of teeth, and strong of tongue?
Tart of palate? quick of ear?
Sharp of sight? of nostril clear?
Moist of hand? and light of foot?
Or, I will come nearer to 't,
Would you live free from all diseases?
Do the act your mistresses pleases,
Yet fright all ache from your bones?
Here's a med'cine for the nones.

Volpone. Well, I am in a humour at this time to make a present of the small quantity my coffer contains: to the rich in courtesy, and to the poor for God's sake. Wherefore now mark: I ask you six crowns; and six crowns, at other times, you have paid me; you shall not give me six crowns, nor five, nor four, nor three, nor two, nor one; nor half a ducat; no, nor a moccinigo. Sixpence it will cost you, or six hundred pound—expect no lower price, for, by the banner of my front, I will not bate a bagatine,—that I will have, only, a pledge of your loves, to carry something from amongst you, to show I am not contemned by your. *Act ii, Scene 1.*

The mountebank doctor of former times with his carriage, his zany and his musicians has long fallen from his former high estate. The quack is still vending his pills to the gullible public, but he does not mount a stage and resembles his predecessors of years ago only in the fluency and volubility of his discourse on the virtues of his pills and plasters.

The English of the Elizabethan age were an eminently unscientific people. The whole structure of medieval thought, resting on magic, alchemy and astronomy, still had a firm hold on them. The universities did little or nothing to instruct in natural philosophy. The common people had nothing but their fancies to help them and they allowed them the license of unbridled freedom. Down to 1500 the belief in magic, alchemy and astrology was almost universal. The medical men, however, labored under special disadvantages. Astrology still remained an integral part of medicine. It was hard to see any great difference in the methods of the regular physicians and those of the quacks. The people did not see it. They do not to-day. The stars and planetary bodies were supposed to have a direct influence, even a casual effect on disease and so among the acquirements of the physicians of the time of Elizabeth a knowledge of astrology was deemed absolutely necessary. The astrologic acquirements of the physician of Jonson's time are referred to by him in his "Staple of News":

The doctor here . . .
When he discourseth of dissection,
Or any point of anatomy; that he tells you
Of vena cava and of vena porta,
The messaricks and the mesenterium:
What does he else but cant? or if he run
To his *Judicial Astrology*,
And trowl the *Trine*, the *Quartile*, and the *Sextile*,
Platic aspect, and *Particle*, with his *Hyleg*,
Or *Alchochoden*, *Cuspes*, and *Horoscope*;
Does not he cant? Who here does understand him?
Act iv, Scene 4.

In the early part of the sixteenth century we hear of few alchemists, but in Queen Elizabeth's time England swarmed with them. A change of thought and action was coming over the world, however, and there was a growing tendency for the honest scientific observer to seek elsewhere than in the field of mysticism and to look for gold other than that which material transmutation could give. The foundations of alchemy were crumbling and the attitude of the people toward the alchemical swindlers was shown when the common people took great joy in breaking into the alchemist's house and destroying everything connected with his work.

Ben Jonson's play, "The Alchemist," shows that he had studied the matter thoroughly and was impressed with some of its follies. It is the greatest and most effective satire on alchemy and the maze of swindles connected with it that has ever been written. The principal character, Subtle, the professional quack and alchemist, was probably a prototype of Forman, the famous London quack of Jonson's day, who was engaged in astrology, magic and medicine. Each of these specific pieces of swindling is detailed in the play. Jonson's reference to Subtle's medical qualification is referred to by Mammon the knight:

Mammon. He's a rare physician, do him right,
An excellent Paracelsian, and has done
Strange cures with mineral physic. He deals all
With spirits, he; he will not hear a word
Of Galen. *Act ii, Scene 1.*

and again Mammon says he is:

above the art of Æsculapius. *Act iv, Scene 1.*

With these references Jonson shows Subtle's knavery in trying to practice medicine principally by magic and astrology. Forman, when summoned before the College of Physicians, in 1593, boasted he had only studied two books and used no other help to know diseases than the Ephemerides. Withal we must acknowledge that both astrology and alchemy have been of great service to mankind. Without astrology much valuable astronomic forecasting would have been lost; and without alchemy, chemistry and metallurgy would not have been so vigorously developed. In the later sixteenth and early seventeenth centuries discoveries were made which revolutionized science. Gilbert's publication, in 1600, of his discoveries in terrestial magnetism, Napier's (1614) invention of logarithms and, what interests us vastly more, the announcement of the discovery of the circulation of the blood by William Harvey, in his course of lectures at Oxford, though the formal publication of his book did not take place until later. It might be of some interest to know that his treatise "Exercitatio anatomica de motu cordis et sanguinis in animalibus" was published at Frankfort, in 1628. He probably selected that city as the place of publication, because, by means of its celebrated fairs, books were thence distributed rapidly,

throughout Germany and the greatest part of Europe. It would be incorrect to say that the characteristics of the medicine of the early dramatists are those of Caius, Linacre, Harvey, Vesalius, Fabricius or Paré. The picture presented to us is a composite one. As a class, physicians were ignorant, adhering to superstitions of the past, believers in Hippocratic treatises modified by Galenism with a touch of Paracelsus. In this it is true to life. It is also true that the great Elizabethan glory shed little of its light on medicine and surgery, but ancient error was beginning to give way to growing truth. Science was alive and making rifts in the clouds of medieval thought, as for instance by the anatomy of Vesalius, by the physic of Galileo, by the experimental physiology of Harvey. With the Renaissance and the revival of learning a new medicine was being born. Great names were being written in the Book of Medicine for all time and it is these men rather than the records of drama who must be our guides in critically judging the characteristics of medicine of the past. The past is worthy of study and more so the further we advance, for in this age of hustle and great scientific progress we are apt to forget the inspiration that a study of our older men of medicine would encourage. The lessons of centuries are not to be forgotten, and in the magic of literature one means is at hand of bringing the influence of the past on the present, and as Goethe says:

In dem Vergangnen lebt das Tüchtige,
Verewigt sich in schöner That.

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THE ATROPHY OF MUSCLE AND BONE RESULTING FROM JOINT-DISEASE, INJURY AND FIXATION

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The disease, injury or fixation of any of the large joints of the body is attended by certain trophic disturbances in the muscles controlling such joints, and in many instances by similar phenomena in the bones composing the joints. That such atrophy of the soft parts accompanies disease and injury of joints has been recognized for a great many years, being alluded to by John Hunter in 1776, Nelaton in 1837, and from that time on occasionally. As to the theory of the cause, whether the atrophy is due to disuse or to some reflex influence or to certain other causes occasionally mentioned has been a good deal discussed without the acceptance of any definite conclusion.[1]

I wish to call attention to the clinical phenomena accompanying the atrophy of muscles associated with joint-injury and fixation, and to the symptoms of bone atrophy occurring under similar conditions; to present typical cases of each and to describe the measures most likely to be of use in their relief. In this connection I am not discussing the muscular atrophy of chronic joint disease.

In all cases of traumatism to the joints, severe enough to result in synovitis and in many others of milder grade, an atrophy of the muscles controlling that joint occurs and frequently persists after the joint itself has become normal.

This matter was discussed by me in a paper published in 1898, under the title of "Local Muscular Weakness as a Cause of Joint-Irritation";[2] papers have also been contributed on the subject by Freiberg[3] and Hoffa,[4] but on the whole the muscular element in joint-injuries has received scant attention.

A patient receives an injury to the knee, we will say, which results in an acute synovitis. This is treated by fixation until the fluid has disappeared, when massage may or may not be given and the splint discontinued. This treatment is the classical one, and generally accepted as, on the whole, the best. Use is then allowed gradually, with the protection of a bandage, massage perhaps being continued. Under these conditions some patients recover wholly in a few weeks, and others do not.

In the latter class the knee continues irritable and painful on use; it feels insecure in walking and may stiffen after sitting. After every extended attempt at use it becomes painful, and the patient rests until it feels better. This process goes on week after week or month after month with varying progress, but with no real gain, and the patient, after trying one physician after another, is likely to be advised to wear an elastic knee-cap.

On examination such a patient shows a leg in which the circulation may be less good than in the other. It is manifestly smaller than the other, and on examination the thigh-muscles of the affected side are flabby and wasted, especially noticeable being the different contour of the two thighs above the knee. The tape measure may show no marked difference, but the tone of the muscles to the touch is very different on the two sides. Lateral mobility of the joint is generally greater on the affected than on the sound side. This is examined for with the knee extended.

The joint itself is not conspicuously swollen; the synovial cavity may appear relaxed as one feels of it, but fluid and conspicuous swelling are absent. The joint may or may not creak on motion. The *x*-ray is negative except that increased radiability of the bone will be noticed in the cases of longer duration. The occurrence of such cases is in my experience very common in adults who have earlier suffered from knee-joint injuries, and in my experience this is the most common cause of chronic disability following traumatic synovitis of the knee. That severer forms of the affection exist has recently been called to my attention by such cases as the following:

CASE 1.—A healthy girl of 21 jumped off from a load of hay and injured the left knee in 1904. There was considerable swelling with ecchymosis, and the patient was on crutches for a month. She wore a bandage for a year, and was occasionally laid up for a few days by twisting the knee during this time. In 1908, four years later, an elastic knee-cap was advised and worn for six months, when the pain became worse, and she was treated by Bier's passive congestion. The knee then seemed better for the next year, but in March, 1910, she twisted it coming down stairs, and this time Bier's treatment gave no relief. In June, 1910, an *x*-ray was negative, but pain was severe, and she had *x*-ray and high-frequency treatments, plaster strapping, and in July, 1910, a plaster-of-Paris cast. This was worn a month or so, and the patient could not walk a block without intense pain for twenty-four hours. In September, 1910, an *x*-ray showed a spot in the femur which was said to be suspicious but which, as seen subsequently in a print, was not convincing. After

1. Mally and Richon: Rev. de Chir., 1905, p. 383; October, 1904. Allen: Arthritic Muscular Atrophy, THE JOURNAL A. M. A., Dec. 23, 1911, p. 2053. Park: Tr. Am. Orthop. Assn., September, 1891.

2. Lovett: Tr. Am. Orthop. Assn., xi, 274.
3. Freiberg: Am. Jour. Med. Sc., May, 1908.
4. Hoffa: Berl. klin. Wchnschr., January, 1905.

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this she received an injection of formaldehyd solution into the joint, and was put up in a plaster-of-Paris cast for ten months and given various drugs. The von Pirquet skin test was positive. In February, 1911, she began on baking, massage and exercises, which she took for six weeks. This made her worse than ever, and mercurial plaster was then tried.

She consulted me in November, 1911, at which time she was lame and could walk very little, and not at all without pain. The left thigh was extremely wasted and flabby; all contours were lost, and the muscular control was so poor that the muscles of the thigh could be voluntarily "set" only with great difficulty and very feebly. The joint-membrane appeared to be normal, but the lateral mobility in the joint was extreme, and when the knee was extended a slipping and grating occurred which was painful. The *x*-ray was negative except for increased radiability of bone on the affected side. A diagnosis was made of a relaxed knee due to muscular atrophy.

Treatment was begun Nov. 27, 1911; the knee was firmly bandaged with flannel, much walking was forbidden, and massage and vibration were begun, and Thomas heels were put on the boots. In ten days exercises were begun, and were followed by pain for twenty-four hours. Short walks were then prescribed, also followed by severe pain. In six weeks the patient was walking briskly thirty minutes without pain every day, and the lateral mobility had greatly diminished, extension was not painful but still accompanied by grating. Jan. 20, 1912, eight weeks after beginning treatment, the patient went to her home.

Her condition in March, 1912, is as follows: She can walk three miles at a stretch without pain, and in walking on icy pavements the knee feels more secure than for seven years. She can climb steep hills, and sometimes after this the muscles of the leg feel a little stiff.

This case, which was, with one exception, the severest that I have even seen due to muscular atrophy alone, seems to me typical, and had I not had the patient's cooperation to work through a painful period, the results of the treatment would have been no better than those of the former treatment.[5]

But apart from the graver type of the affection just described, mild degrees of the affection are in my experience extremely common in orthopedic practice. Three or four times I have found atrophy of the thigh muscles without history of preceding injury, which has given rise to irritability and discomfort in the knee.

The cases already alluded to belong to the muscular group, and these have been recognized and described, but there is apparently another group of atrophic lesions following joint-injury, inflammation and disease, which are still more severe, and which apparently affect the bone as well as the soft parts. The literature on this division of the subject is fragmentary and comparatively but little known, and clinically few references are made to the condition.

In certain cases following joint-injury, disease or inflammation, an acute atrophy of bone has been noted, beginning as early as the fourth day (Sudeck), but all of the cases coming under my observation have been of weeks' or months' duration. The condition is characterized by an accompanying muscular atrophy and by a swelling of the affected joint. This swelling may become marked, and is accompanied by coldness of the skin with some cyanosis and marked disturbance of circulation in the limb. Impairment of function exists from the beginning, and in the cases of long duration joint-stiffness occurs.

A typical case is the following, the records and *x*-ray plates of which were referred to Dr. R. C. Cabot and myself by a physician and an orthopedic surgeon in another city. As the case has been already reported by Dr. Cabot I reproduce his account of it.[6]

CASE 2.—"Some two years ago a rather neurotic young married woman from a western state was staying in the family of a doctor. Her sister was having treatment for foot strain and the two women went to the orthopedist's office together. The well sister fancied she felt some discomfort in her foot, too. An *x*-ray of the foot was taken, which disclosed on the end of one of the metatarsal bones a pointed spur about one-quarter of an inch long. For the removal of this an operation was undergone. At the time of the operation the surgeon found in the tissues about the affected joint a good deal of edematous fluid and bogginess, which puzzled and more or less alarmed him. The wound was closed, and it gradually transpired later that the spur was never removed. This fact did not add to the patient's confidence in the medical profession. Meantime the fear of tuberculosis had been aroused in the medical attendants, and was thence communicated to the patient's family and ultimately to her. It was not definitely said that the trouble was tuberculosis, but she was given the kind of treatment which her general knowledge of the movements of the day had taught her to associate with that disease. The foot was kept wholly at rest, the patient urged to spend hours each day in the open air and to take a large amount of nourishment. After nearly a year of this sort of treatment the patient was neither better nor worse. No abscess formation or other definite result of tuberculosis had appeared, but the foot was persistently swollen, painful, tender, mottled and discolored with bluish and purplish tints, while at times two or three toes were marble white. At times, also, the patient would run one-half degree or a degree of temperature in the afternoon for two or three weeks. In February, 1909, she consulted a number of noted specialists in internal medicine and in orthopedics, the total result being that she was advised to take a course of treatment by mercury and iodid of potash. About this time some *x*-ray plates were shown to me and to a well-known Boston orthopedic specialist; to both of us a complete history of the case was also submitted. He made a diagnosis of plaster-of-Paris disease in which I concurred; in other words, of a chronic malnutrition of the part, resulting from the abuse of rest and the consequent impairment of circulation in the part. I saw the patient toward the end of February, 1909, and advised her to begin to walk on the foot, and gradually to disregard all the precautions which she had been urged to observe. Within a few weeks the foot was perfectly well and has remained so since."

This report of Dr. Cabot, made in 1909, is rendered more emphatic by his statement made personally that in the spring of 1912 the patient continues perfectly well.

In these cases, on *x*-ray examination the spongy part of the bone casts little or no shadow, and the cortex shows as a clear white line. In the severest cases the cortex is practically all that shows in the plate, the spongy portion being hardly lighter than the soft parts.

Microscopically one finds a diminution in number and thinning of the trabeculæ with thinning of the cortex. In severe cases the weight of the bone is reduced to a third of normal, but the proportion of organic to inorganic matter remains unchanged (Exner).

One of the most typical and severest cases coming under my notice was the following:

CASE 3.—In January, 1910, I saw, in consultation with Dr. H. E Sears of Beverly, Mass., a girl of 16, who gave the following history: In October, 1909, or three months previously, while at school she turned while standing at her seat, and at the same time started to sit down. She felt a very severe pain in her left knee, but finished the school session

5. Wolf: Ueber troph. Störungen bei primären Gelenkleiden, Berl. klin. Wchnschr., 1883, Nos. 28 and 29. Kienböck: Ueber akute Knochenatrophie bei Entzündung-Prozessen an der Ext., u. s. w., Wien. med. Wchnschr., 1901, No. 28. Sudeck: Fortschr. a. d. Geb. d. Roentgenstrahlen, iii and v, 277; Ueber die ak. entz. Knochenatrophie, Arch. f. klin. Chir., l, 62. Exner: Beiträge zur Kenntniss der akuten Knochen-Atrophie, Fortschr. a. d. Gebiete d. Roentgenstrahlen, 1902, vi, 1.

6. Cabot: The Use and Abuse of Rest in Therapeutics, Old Dominion Jour. Med. and Surg., 1909, ix, 5

and walked home. At home the knee was found to be swollen. She was seen that night by Dr. Sears; the knee was bandaged and the girl put to bed. She was in bed five weeks with a very painful knee, and at eight weeks massage was begun, but was so painful that it had to be abandoned. A plaster mold was then applied, but it had to be removed in six days on account of pain. A ham splint was substituted, and at this time an *x*-ray showed no bony lesion but an increased radiability of the bone on the affected side.

When I saw the girl the knee was practically stiff, allowing perhaps 5 degrees of motion to show that it was not firmly ankylosed. The knee, leg and foot were greatly swollen, the color of the leg bluish and the skin cold. The knee was exquisitely sensitive to touch and to attempted flexion. The tissues about the knee were dense and infiltrated. The case was carefully discussed by us, and the only diagnosis which I was able to make, and of which I was by no means sure, was that of bone atrophy following an injury to the knee. Passive congestion, graduated use and massage were advised.

In May, 1910, I saw her again with Dr. Sears, and we found that the condition, although somewhat better, had not appreciably improved, and the girl came to Boston for treatment. At this time the symptoms were much the same as those in January. The *x*-ray showed the bones of the knee-joint greatly atrophied, with almost no shadow cast by the spongy tissue, and the cortex showing as a clear sharply-defined line. Treatment to restore the circulation was begun May 25, 1910, by electric light, gentle massage, etc., and gentle bending was begun. The Achilles tendon, which had shortened, was stretched, and crutches were gradually discontinued. In two weeks the knee could be flexed to 45 degrees, and she could walk with one crutch. On June 16, 1910, she went home with directions for exercises to be done, and on July 28, 1910, she wrote that the pain had gone, that she limped very little, that the swelling was diminishing, and that she walked without cane or crutch.

In March, 1912, Dr. Sears reported that the patient walks with no limp, climbs stairs, dances, etc. The knee motion is free except on extreme flexion, and no pain is felt except on overfatigue. There is still slight enlargement of the whole leg, but the same size of boot can be worn on the two feet.

This case, which was the severest that I have seen, recalled to me several cases occurring in the past in which I suspect that I had failed to recognize the true condition; and, indeed, before the use of the *x*-ray it would have been difficult to obtain any confirmation of suspicions of bone atrophy if one had had them. I recall particularly the following case some years ago.

CASE 4.—A boy at the clinic of the Children's Hospital received some injury to his ankle, the progress of which became so slow and resistant that we concluded that tuberculosis was present from the swelling, tenderness and limitation of motion which had existed for months. Plaster-of-Paris was applied, and he was given the usual treatment for months. Finally it was suspected that it might not be tuberculosis, and the plaster was removed. The patient became immediately worse, and the plaster was reapplied. Again the case was investigated, and the *x*-ray showed so marked an atrophy, with disappearance in the *x*-ray of all spongy structure, that I took the responsibility of removing the plaster, giving up the crutches and starting on massage. After several weeks the boy had improved so much that he was walking without assistance, the swelling was less, and the pain had improved. He disappeared from observation when his family moved away, and I have never been able to trace him.

But difficult as the recognition of this condition of bone atrophy may be when existing by itself, it may become exceedingly difficult to separate from other conditions with which it may be associated, as for example in the following:

CASE 5.—In January, 1911, a woman consulted me with a tender and swollen foot which had troubled her for two or three years. In the metatarsus was a tender lump with much swelling of the foot. The *x*-ray showed a thickening of the fourth metatarsal, suggesting osteomyelitis. A plaster-of-Paris bandage was applied and crutches ordered. A month later another *x*-ray showed more marked disease in the metatarsal, and in February I resected the distal two-thirds of the fourth metatarsal bone. The wound healed well, and Feb. 24, 1911, the patient was discharged to her home in Maine. The pathologic examination of the specimen showed chronic osteomyelitis.

In October, 1911 (eight months later), the patient reappeared with much the same symptoms as formerly. There was much pain; the foot was greatly swollen and dusky, and she could not walk except leaning heavily on crutches. I supposed, of course, that the osteomyelitis had extended or returned, and took an *x*-ray. This showed each of the metatarsals apparently healthy, with apparently normal remains of the fourth, but such extreme diminution of shadow in the whole fore portion of the foot that the *x*-ray consisted only of lines of cortex, the spongy tissue throwing no more shadow than the soft parts.

The patient was started on massage, electric light, exercises, etc., and the use of crutches gradually discarded. The tenderness and swelling diminished, and the circulation had improved. After a month of treatment (November, 1911) she was able to wear a boot, walk a short distance without cane or crutches and, after being at home two months, reported that she had improved further but was still lame. That she had enough bone atrophy to account for her pain in the fall of 1911 is clear, but it is of course not proved as yet that this was the whole trouble, although the behavior of the case under the treatment makes it seem likely. The original trouble was of course osteomyelitis.

I am not assuming that these cases of muscle and bone atrophy are not recognized by surgeons, but I am supported by facts in saying that very few cases of the sort are reported, and I am fairly sure that the importance of this factor in connection with joint-injuries is not sufficiently appreciated. With every synovitis, with every fracture, with every arthritis there occurs muscular atrophy, and this muscular atrophy persists after the joint is well in acute cases, and persists as a complicating factor in chronic cases. There is no easier way to improve the condition of a quiescent arthritic joint than to improve the muscles controlling the joint.

We who must use fixation in most cases must not forget that fixation promotes atrophy, and that atrophy must be reckoned with. In this connection I desire to present a letter from Dr. E. H. Nichols, assistant professor of surgical pathology and of surgery in Harvard University. This letter was written in 1908 in response to a request from me for information,[7] and in 1912 Dr. Nichols writes me that he continues to use the same treatment, and has nothing to change in his letter of 1908.

For the acute synovitits of the knee of traumatic origin among the football men at Cambridge the following line of treatment has been used. It must be borne in mind that football men want to get back to playing as soon as possible. Having tried fixation and finding it took about as long to get over the fixation as it did to recover from the injury, the following plan has been tried during the past three years, with better results and shorter convalescence than with fixation:

The man, after acute injury, is carried to his room and put to bed and kept quiet. Alternate hot and cold douches are given three times that night. In most cases the knee is moderately fixed with sheet-wadding compression, outside of which a 4-inch bandage. Next day the man walks to the field with a stiff knee and bandage. Baking is given ten to fifteen minutes. Alternate hot and cold douches at night. As soon as the swelling begins to lessen, massage, not "rubbing,"

7. St. Paul Med. Jour., February, 1909.

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is begun. Man walks with firm bandage. Baking once a day and massage once a day for about a week, then no baking. No playing till effusion and tenderness are gone. Playing begins with bandage without sheet wadding. Weakness lasts about a week after playing begins. I cannot give exact time men are out of the game; the average is about two and a half weeks, I think. No plaster has been used for three years unless rupture of lateral ligaments or obvious semilunar dislocation. No case has recurred on playing.

But it is one thing to treat synovitis in college athletes and another thing to treat it in men and women with poor muscles or in middle life, and I am by no means wishing to advocate the abandonment of fixation in acute joint-injury and disease, only to call attention to the inevitable occurrence of muscular atrophy in any event, to insist that prolonged fixation increases it, and to ask that attention be paid to it in after-treatment and after operations on joints.

For example, I have had under treatment recently three patients in whom a slipping semilunar cartilage had been removed without curing the disability, in all of whom muscular weakness and lateral mobility had persisted, resulting in a vulnerable joint easily strained. In one the symptoms were light and rapidly disappeared under muscular development by exercises. In a second, running, skating and games had been abandoned for many months; the knee was insecure and constantly being wrenched in walking. Lateral mobility was very marked, muscular power was poor, but the joint apparently normal. A few weeks of heavy muscular resistive exercises cured the lateral mobility, the muscles became firm and the full use of the joint became possible.

In a third, some months after operation, muscular wasting was excessive; the knee was bandaged and not bent in the little walking that was done, yet the joint membrane was normal, although the patient had given up all activity. After two weeks of massage, vibration, resistive exercises and outdoor walking, the muscular condition had so far improved that the joint could be used normally for a short period daily, and the patient returned home to carry out his exercises; the ultimate condition is not known.

What the condition of these joints was prior to operation I do not know, as I had not seen them until after operation, but it is well to remember that operation will not cure muscular atrophy, and that in chronic knee cases it is always present and is a factor to be remembered.

With regard to bone atrophy, either by itself or complicating other conditions, we should bear it in mind as a competent cause of pain, swelling, stiffness and disability when the *x*-ray shows marked loss of spongy tissue and clear white lines defining the cortex.

As to therapeutics of both conditions, the treatment of the cases described has indicated the measures, in my opinion, most likely to be of use. Rough or excessive massage invariably aggravates symptoms, and overuse causes symptoms so severe that one is tempted to abandon treatment. Massage, heat, passive congestion and active exercises in the smallest possible doses, followed by active progressive use of the joint, are the measures most likely to be of use.

234 Marlborough Street.

The Personal Factor in Diagnosis.—With all our varied instruments of precision, useful as they are, nothing can replace the watchful eye, the alert ear, the tactful finger and the logical mind which correlates the facts obtained through all these avenues of information and so reaches an exact diagnosis.—Keen in Da Costa's "Physical Diagnosis."

A SIMPLE BLEEDING-TUBE FOR OBTAINING SPECIMENS FOR THE WASSERMANN REACTION *

ALBERT KEIDEL, M.D.
BALTIMORE

In collecting specimens of blood for complement-fixation reactions it is important to prevent contamination of the serum with certain foreign materials which might vitiate or change the results. In hospitals and laboratories, where the proper instruments and utensils for bleeding the patient and collecting the blood are usually available, such contaminations rarely occur. It is, however, not always possible or convenient to send the patient to a hospital for this purpose and the specimen must be collected at the physician's office or at the patient's home. This is often attended with difficulties, and a poor or worthless specimen is frequently obtained. In other instances there is delay in getting the specimen to the laboratory, which may be situated at a more or less distant point; and, unless the blood and container are sterile, the growth of microorganisms soon renders the specimen unfit for the reaction.

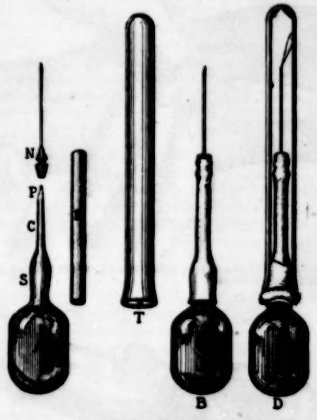

Fig. 1.—*A*, vacuum ampule; *B*, rubber tubing; *N*, needle; *B*, apparatus assembled ready for use; *T*, glass protecting-tube; D, assembled for sterilizing. Apparatus marketed by the Steele Glass Company, 622 Locust Street, Philadelphia.

To meet these practical difficulties, and especially to make it as easy as possible for physicians working in their offices to obtain specimens of blood which will give constant and reliable results, the simple bleeding-apparatus here described was devised. Its simplicity may appeal as well, even to those working in laboratories well supplied with the ordinary apparatus.

The essential feature of this apparatus is the substitution of a closed vacuum chamber for the cylinder and piston of the ordinary aspirating syringe. This substitution eliminates all possibility of contamination in collecting the specimen, and makes it possible to ship the specimen in the container in which it was originally collected, without any transfer and sealing whatever.

The apparatus consists of four parts, as shown in Figure 1: An ampule, *A*, of 5 c.c. capacity, with the

* From the Genito-Urinary Clinic, Johns Hopkins Hospital.

neck, *S*, drawn out to capillary dimensions at *C*, is exhausted of its containing air and sealed at *P* so as to contain a partial vacuum.

A short piece of white rubber tubing, *R*, which may be sterilized by dry heat (150 C. for one hour) without melting or charring, is fitted tightly over the neck of the ampule at *S*, and has a lumen sufficiently large to admit the capillary portion of the ampule without being entirely occluded by it.

A needle, *N*, of No. 25 gauge with a special shank is fitted tightly into the free end of the rubber tubing. These three parts are assembled as shown under *B*.

A slender glass tube, *T*, closed at one end and flaring slightly at the other, serves as a protection for the needle which it covers (*D*) when the apparatus is sterilized,

Fig. 2.—Thrusting the needle into the vein, while making traction on the skin to fix the vessel.

Fig. 3.—Breaking the capillary point, after the point of the needle has been thrust into the lumen of the vein.

fitting loosely over the rubber-covered portion of the ampule at *S*. A thin layer of absorbent cotton is wrapped around the rubber tubing at *S* to prevent adhesion of the rubber to the glass protecting tube, *T*, and the apparatus is sterilized in a hot-air oven at 150 C. for one hour.

To obtain a specimen of blood, select a prominent vein in the forearm and cleanse the overlying skin with soap and water, and alcohol. If necessary, a tourinquet may be applied to the arm above the elbow to make the vein more prominent. Remove the tube, *T*, and grasp the rubber-covered shank of the needle with the thumb and two fingers of the right hand. Thrust the needle obliquely into the lumen of the vein, while making traction on the skin with the left hand to fix the vessel (Fig. 2). After making sure that the point of the needle is in the lumen of the vein and has not pierced the opposite wall, seize the rubber tubing midway between the shank of the needle and the ampule with a pair of hemostatic forceps (Fig. 3) and gently crush the capillary point of the ampule within the rubber tubing.[1] If the vein has been entered, the blood will flow into the ampule until the vacuum has been replaced. Before withdrawing the needle the tourniquet must be loosened to prevent extravasation from the vein.[2] For shipment, the protecting glass tube *T* is replaced, and no further sealing is necessary.

More than 200 of these bleeding-tubes have been used during the past five months, by a number of physicians, and in every instance that I know of they have been an advantage over other methods of obtaining and shipping specimens. Many specimens have been shipped distances of 800 and 1,000 miles, and have arrived at the laboratory in perfect condition. In not a single instance has it been necessary to reject a specimen coming to this laboratory in these tubes, owing to unfitness for the Wassermann reaction. We have in this apparatus all the advantages of an aspirating syringe without its disadvantages. The blood is never exposed to the air until the ampule is opened in the laboratory. No transfer from a syringe to a shipping-tube is necessary. The apparatus provides a quicker, cleaner and more efficient method of bleeding than the simple puncture of an ear or finger. Its application is not limited to the collection of blood for the Wassermann reaction, as any size ampules may be used, and the aspiration of any fluid accomplished under absolutely aseptic conditions. It is easy to sterilize without boiling, is always ready for use, with no parts to get out of order, is simple and easy to operate. It provides an uncontaminated specimen; requires no sealing; and is cheap enough to throw away after using once.

Professional Building.

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END-RESULTS OF SIXTY-SIX PLATINGS

REMARKS ON THE TREATMENT OF FRACTURE OF THE LONG PIPE BONES *

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ST. LOUIS

Do the end-results demonstrate that the two principal bugbears of the closed treatment in fracture of the long pipe bones are eliminated by the internal splint, insuring the patient the best possible result without exposing unduly to the dangers of postoperative complications? Shortly after Lane's monograph appeared I saw disaster follow plating in the hands of a few of our best surgeons and I was somewhat reluctant to recommend this form of treatment except in cases of compound fracture with displacement and in cases of non-union. During the past two years, however, several of the surgical members of the visiting staff have done considerable plating at the City Hospital, and in order to determine the practical results of plating in competent hands, I have made

1. If hemostatic forceps are not at hand, grasp firmly the rubber tubing with the thumb and forefinger of each hand and with a bending motion snap the capillary portion within.

2. If no blood is obtained at the first attempt, and the operator desires to withdraw the needle for another attempt, the vacuum may be saved by first clamping the rubber tubing close to the shank of the needle with hemostatic forceps.

* From the St. Louis City Hospital.

strenuous efforts to trace and examine each patient. The findings may be seen in the accompanying table.

COMMENTS ON RESULTS OF PLATING

There were thirteen patients with simple fracture of the femur having sixteen plates applied. One patient had both fractured and both plated. One patient had a fracture plated twice because the first plate broke owing to faulty cast. There was one death from shock following a second plating, and one from sepsis.

Six of the twelve simple and six of the nine compound fractures of the tibia (or tibia and fibula) became infected. One patient died from amputation following sepsis. One patient with fracture of both bones of the leg had both plated. Dr. Heeley writes me that he removed seven other plates from the tibia in the out-clinic department of the City Hospital, and that Drs. Van Wormer and Kissell removed nine plates, all superficial. This would indicate that nineteen of the twenty-one patients with fracture of the tibia, or tibia and fibula, had to have the plates removed, and that nine other plates were removed from superficial bones, e. g., clavicle, radius, ulna and fibula.

TABLE SHOWING END-RESULTS IN SIXTY-ONE CASES OF PLATING

	Patients	Plated	Infected	Perfect Result	Not Traced	Died
Femur:						
Simp.	13	16	3	7	2	2
Comp.	0	0	0	0	0	0
Tibia and Fibula:						
Simp.	12	12	6	4	6	0
Comp.	9	10	6	4	4	1
Fibula:						
Simp.	6	6	1	2	4	0
Comp.	0	0	0	0	0	0
Clavicle:						
Simp.	5	5	0	2	2	1
Comp.	1	1	1	0	1	0
Humerus:						
Simp.	11	12	0	5	4	0
Comp.	0	0	0	0	0	0
Radius:						
Simp.	2	2	1	1	1	0
Comp.	0	0	0	0	0	0
Ulna:						
Simp.	1	1	0	1	0	0
Comp.	1	1	1	0	1	0

Of six platings of the fibula, including the one mentioned above, one became infected, two patients had perfect results and four were not traced.

There were five cases of simple and one case of compound fracture of the clavicle. One patient with simple fracture developed a postoperative pneumonia and died; the patient with compound fracture became infected.

Of eleven cases of simple fracture of the humerus, one fracture was replated because of non-union; four patients could not be traced; five had perfect results. One of two simple fractures of the radius and one compound fracture of the ulna became infected.

Thus in sixty cases in which there were sixty-six platings there was one operative death, one death from postoperative pneumonia, and two from sepsis. There were twenty-six perfect results.

CONCLUSIONS

1. The greatest danger of plating is infection and consequent osteomyelitis.

2. In all platings of compound fracture of the tibia, fibula, radius, ulna and clavicle, we should remove the plate as soon as possible.

3. The plate should never be placed immediately beneath the skin.

4. Plating yields the best results in simple fracture of the humerus and femur, providing every possible precaution is taken to prevent infection.

5. A snugly-fitting cast should be applied immediately after plating. This requires as much attention at the hands of the operator as the plating.

6. Plating is not to be recommended except in cases in which the skiagraph indicates its advisability, since even with the greatest possible precaution infection will occasionally creep in.

REMARKS ON TREATMENT

The above findings indicate the dangers and limitations of plating, and the need of an absorbable internal splint. Every fracture of the shaft of a long pipe bone should be, if possible, skiagraphed or examined under an anesthetic, since the character and site of the fracture and the degree of displacement are important factors in considering the treatment. I prefer to make a skiagraph both before and after applying splints. I advocate a portable *x*-ray apparatus as a part of the necessary equipment of every hospital.

In simple transverse fracture of the femur in which manipulation under ether fails, I recommend exposure of the fragments and accurate reduction by means of forceps, block and pulley. Apposition splints and a snugly fitting plaster-of-Paris cast are then applied. In my three cases the results have been perfect. In three recent cases of spiral fracture I have used the iron wire with good results. In oblique fracture, and cases of non-union, plating is indicated. In comminuted fracture I rely on the Hodgen splint.

Every attempt is made to avoid plating simple fracture of the tibia. Frequent renewal of the plaster-of-Paris cast will be found efficacious in many cases. This is especially true in comminuted cases. The silver wire does not give satisfactory results in cases of fracture of the tibia. We really need a thin, absorbable plate with two or three screws in the cases of compound fracture, and also in simple fracture of both bones of the leg with considerable displacement.

I seldom or never plate the clavicle. This is also true in fracture of the fibula and of the bones of the forearm. In young women who object to a small operative scar, the usual closed treatment is followed. I have had excellent results in ten cases in which the wire was used.

Plating yields excellent results in all cases of transverse fracture of the humerus, and I recommend this form of treatment when the triangular axillary splint, supplemented with apposition splints and the plaster-of-Paris cast, as shown by the skiagraph, fail. Wiring of the humeral shaft is not satisfactory; plating is preferable in both simple and compound cases providing a small plate is used. In fracture of the neck without dislocation of the head, I prefer wiring.

In fracture of the radius or uina I rely on the posterior splint or the wire. When both bones of the forearm are fractured I advise wiring. In five cases of fracture of the olecranon process of the ulna I have followed Murphy's technic with excellent results.

SUMMARY

1. In sixty cases with sixty-six platings there were thirty-five plates removed, twenty-six perfect functionating results; one death was due to postoperative pneumonia, one due to shock following a second plating, and two due to sepsis.

2. Plating yields the best results in cases (a) of non-union; (b) of compound fracture with considerable

displacement, and (c) of simple fracture of the humerus and femur, in which the skiagraph indicates the inefficiency of the closed treatment.

3. Plates should never be placed immediately beneath the skin unless we expect to remove them. I seldom or never plate the clavicle, radius, ulna or fibula, since the absorbable wire is preferable.

4. The character of the fracture and the skiagraph findings indicate the proper treatment in any given case of fracture of the long pipe bones.

5. The possibility of malignant disease following plating is a mooted question.

4826 Delmar Avenue.

A RARE CASE OF LYMPHATIC LEUKEMIA

CHARLES E. HOLZER, M.D., GALLIPOLIS, O.

The following presents an unusually interesting blood-picture, and since the patient was followed to the autopsy table, the complete study seems worth reporting.

History.—The patient was a man 64 years old, grocer, with unimportant family history except that father died of disease which answered description of a leukemia. Two sisters died of tuberculosis at middle age. Previous history was negative; the patient had had no previous illness except usual diseases of childhood. About March, 1910, he noticed a cough which became very persistent, but was not accompanied by expectoration. About the same time he noticed dyspnea on exercise. Both of the foregoing symptoms grew slowly but steadily worse. For two months previous to examination he had had pain at root of neck and difficulty, with some pain, in swallowing. Has been gradually losing weight for about one year, and for past six months has been growing constantly weaker and more exhausted. He was able to work until about two months before death. During the last month before death he showed slight elevation of temperature at irregular intervals, varying between 97.4 and 100.6. During this time he had several times been mildly delirious for a few hours at a time. His appetite was fair, but he would take but little nourishment on account of difficulty of swallowing. There was no disturbance of digestion. Thirst was excessive; bowels constipated. Vision failed during last month of illness. The patient was frequently dizzy and complained much of shortness of breath on slightest exertion and especially when eating or talking. He slept poorly, chiefly because of dyspnea.

Physical Examination.—Pale, emaciated, stooped, rather prematurely aged man; color waxy with somewhat of a lemon tinge; dull; slow in responses; at times mentally confused and indefinite as to time and location; memory rather poor; makes an occasional unreasonable statement and also becomes confused as to the names of persons and objects.

Chest: Three glands about size of hazel-nut found in post-cervical region. Visible arterial pulsation in cervical vessels and slight pulsation in episternal notch. On percussion, an area of marked dulness found, triangular in shape, the base being a line from middle of clavicle to first interspace on right side, one inch to right of sternal border; one side a line from this point parallel to the sternum to the third interspace, and the other side a line from this point of third interspace to middle of clavicle.

Lungs: Slight dulness found in apex of each lung. Dulness at base of lungs posteriorly on both sides. No respiratory sounds in triangular dull area. Faint tubular breathing at apices of both lungs. Harsh tubular breathing and many coarse râles at bases posteriorly.

Heart: Increase of cardiac dulness chiefly to the right. Apex displaced about one inch to left. Impulse feeble, rhythm irregular. Pulse 90 to 110. Blood-pressure 88. Systolic murmur heard at base on left side, not transmitted, hemic.

Abdomen: Flat, muscles rigid. Several enlarged mesenteric glands detected.

Urine: Clear, acid, specific gravity 1.028. Albumin, a trace. No sugar. Few hyaline, fine and coarsely granular casts.

X-ray examination of chest shows deep shadow corresponding to triangular dull area described, also indicates that mediastinal contents have been pushed aside, since the vertebræ are visible at a point where usually they are concealed by mediastinal contents.

Blood Examination: March 11, hemoglobin 14 per cent. (Sahli); reds 1,540,000; whites 10,700; polymorphonuclears 8.5 per cent.; small lymphocytes 4 per cent.; eosinophils 0.2 per cent.; neutrophilic myelocytes 0.6 per cent.

March 17: Hemoglobin 10 per cent. (Sahli); reds 1,090,000; white 20,500; polymorphonuclears 2.2 per cent.; small lymphocytes 93.8 per cent.; large lymphocytes 4 per cent.

Course.—Patient gradually grew more stupid and had a low muttering type of delirium. Exhaustion was present to extreme degree and caused death March 19, 1912.

Autopsy.—Mass of enlarged glands in mediastinum; lungs show infiltration at the apices of both. A bloody fluid in the pericardium. Liver large, smooth, no nodules. General enlargement of mesenteric glands. Microscopic examination of mediastinal glands showed simple hyperplasia. No evidence of tuberculous infiltration.

Points of interest are:

1. Gland hyperplasia confined to mediastinal and mesenteric glands.

2. Comparatively low white count.

3. High percentage of lymphocytes and correspondingly low percentage of polymorphonuclears. (No case found in literature in which the polymorphonuclear percentage was as low as 2.2 per cent.)

4. Case apparently purely lymphatic, no evidence of the myelogenous type, either enlarged spleen or myelocytes.

5. Absence of all symptoms except local until short time preceding death.

One week before death the patient was referred to Dr. Frank Winders of Columbus, Ohio, whose findings corresponded to the above, and to whom I am indebted for the careful study and report of the blood condition. The case was also seen by my associate, Dr. W. H. Pritchard of Gallipolis, Ohio.

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New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLE HAS BEEN ACCEPTED BY THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION. ITS ACCEPTANCE HAS BEEN BASED LARGELY ON EVIDENCE SUPPLIED BY THE MANUFACTURER OR HIS AGENT AND IN PART ON INVESTIGATION MADE BY OR UNDER THE DIRECTION OF THE COUNCIL. CRITICISMS AND CORRECTIONS ARE ASKED FOR TO AID IN THE REVISION OF THE MATTER BEFORE PUBLICATION IN THE BOOK "NEW AND NONOFFICIAL REMEDIES."

THE COUNCIL DESIRES PHYSICIANS TO UNDERSTAND THAT THE ACCEPTANCE OF AN ARTICLE DOES NOT NECESSARILY MEAN A RECOMMENDATION, BUT THAT, SO FAR AS KNOWN, IT COMPLIES WITH THE RULES ADOPTED BY THE COUNCIL.

W. A. PUCKNER, SECRETARY.

CRESATIN.—Meta-Cresyl Acetate.—Cresatin is the acetic acid ester, $CH_3C_2H_4O$ (CH_3CO) of meta-cresol, $CH_3C_6H_4OH$.

The chemical properties of meta-cresyl acetate were studied by C. Panoff in 1903 (*Jour. Russ. Phys. Chem. Ges.*, XXXV, p. 931).

Cresatin occurs as a colorless, oily liquid, possessing a characteristic odor. It is practically insoluble in water, but soluble in the ordinary, organic solvents, miscible with liquid petrolatum, fixed and volatile oils and is volatile with steam.

If 10 Cc. Cresatin be shaken for one minute with 100 Cc. water and filtered through a wet filter, the filtrate should have a neutral reaction, and should not produce a violet color with ferric chloride solution, or produce a turbidity with silver nitrate solution.

If 10 Cc. Cresatin be evaporated it should leave after incineration no weighable residue.

Actions and Uses.— Cresatin is said to possess antiseptic and analgesic properties, and is apparently free from toxic effects. It is said to be useful in the treatment of affections of the nose, throat and ear, such as follicular tonsillitis, nasal suppuration due to ethmoidal diseases, atrophic nasopharyngeal catarrhs, furunculosis of the external auditory canal and purulent otitis media. When applied to mucous membranes it is said to cause no irritation, sloughing or discomfort.

Dosage.—Cresatin may be employed either in the pure form, or in dilution with oils or alcohol by direct application or spray.

Manufactured by Schieffelin & Co., New York. No U. S. patent. U. S. trademark No. 80,553.

STATE BOARD STATISTICS FOR 1911

THE ANNUAL PRESENTATION BY THE COUNCIL ON MEDICAL EDUCATION OF RESULTS OF STATE BOARD EXAMINATIONS

On pages 1584 to 1591 are three tables, A, B and C, giving in detail the results of the various state medical license examinations held during 1911. Complete reports were received from all states.

Tables A and B have been arranged so that, read from left to right, they give the results by colleges, showing the number of graduates appearing for examination in each state, whether they passed or failed, the total number examined during the year, the number who passed, the number who failed, the percentage of failures and the number of states in which graduates of each school appeared for examination. Read from above downward, they give the results by states, showing the number registered and rejected from each college, the total number examined, the total number registered, the total number rejected and the percentage of rejections. The fact that the majority of graduates take the license examination in the state in which the college is located is shown by the dark diagonal zone made by the grouping of figures, passing from the upper left to the lower right corner of each table. This shows also that the states which harbor low-grade medical schools are themselves the recipients of the greater portion of the ill-trained output of such schools. These tables are worthy of much careful study, for many important deductions are possible.

Caution in Forming Conclusions

In making comparisons on the basis of these statistics several factors should be carefully considered. The number examined is important since, if all other conditions are equal, the larger the number of graduates examined, the more accurate is the finding. But other conditions are seldom equal. The number of states in which a school's graduates have been examined is important. The larger this number the more accurate will be the conclusions. Again, the character of the board making the examination and the methods employed are important factors to be considered, since some boards hold very careful examinations and include practical laboratory and clinical tests, or they may mark the papers more severely, while others, especially partisan boards, may be very lenient. In this connection it should be stated that although conditions are undergoing a steady improvement it is still true that the character of the license examination as usually conducted at the present time is such that graduates of colleges conducted largely by quiz-class methods may easily be successful in passing them. Therefore, the statistics herewith presented should be taken only as part of any investigation of medical schools, although it is an important part.

Graduates of All Years Examined in 1911

Table A shows the results for all candidates who took examinations in 1911, regardless of the years in which they graduated. This shows that altogether 6,960 were examined last year, as compared with 7,004 in 1910; 7,287 in 1909; 7,770 in 1908, and 7,271 in 1907. Of those examined 19.9 per cent. failed, as compared with 18.4 per cent. in 1910; 19.6 per cent in 1909; 21.7 per cent. in 1908, and 21.3 per cent. in 1907.

There were 119 medical colleges in the United States granting degrees in 1911, which had graduates examined. Foreign graduates were examined in twenty-one states, the total number being 116. The largest number of foreigners examined in any state was forty-three in New York. Graduates of Canadian schools were examined in twenty-seven states, more appearing, naturally, in the border-line states. The figures for the Canadian colleges are given separately in order to show the number of candidates coming from each as well as to show the successes of their graduates at the examinations. Altogether ninety-six candidates from Canadian colleges were examined, of which number twenty or 20.8 per cent. failed. Of all Canadian colleges, the University of Toronto had the largest number examined. The highest percentages of failures were for Laval University, 62.5; Queen's University, 26.7, and Western University, 14.3.

Undergraduates Examined During 1911

Line 128 of Table A shows the number of non-graduates examined in four states during 1911. Altogether 330 non-graduates were examined, of which number 127 or 38.5 per cent. failed as compared with 45.6 per cent. in 1910. North Carolina is required by an amendment to its practice act to register non-graduates, who are permitted to practice only in the sparsely settled mountain districts. There was an open door for these candidates in 1911 only in Massachusetts, Mississippi, Oregon and Tennessee, and the percentage of failures in these states this year for non-graduates were respectively, 68.6, 46.4, 50.0 and 21.4. The largest number registered was in Tennessee where, out of the 213 candidates registered by examination during the year in that state, 110, or 51.6 per cent., were non-graduates. This is even worse than in 1910 when out of 315 candidates licensed during the year, 142, or 45.1 per cent., were non-graduates. Meanwhile, Tennessee is now the only southern state which has the door wide open for this sort of candidate, Mississippi having recently secured an amendment to its practice act requiring graduation. Note also that in the examination of non-graduates, Tennessee has the lowest percentage of failures.

Recent Graduates Examined During 1911

Table B gives the results for graduates of 1907 to 1911, inclusive, which were examined during 1911. This table is particularly important, since it deals with recent graduates and is, therefore, the fairest basis for comparison between colleges. The fairest estimate of a medical college from the standpoint of failures at state board examinations would be obtained from this table. Of all candidates examined in 1911, 5,685, or 81.7 per cent., were recent graduates, and of this number 17.2 per cent. failed, as compared with 19.9 per cent. for all candidates. The figures for several medical schools which have ceased to exist either through merger or otherwise have been included in the line for miscellaneous colleges.

Old Practitioners Examined During 1911

Table C is so arranged as to show in comparison the results for graduates of all years (first column), for recent graduates (second column), the graduates of 1906 and previous years (third column), and the graduates of 1911 (fourth column). Of the graduates of 1906 and previous years, or "old practitioners," 945 were examined and of this number 278, or 29.4 per cent. failed, as compared with 17.2 per cent. of failures for recent graduates. This high percentage of failures is probably due chiefly to the long time these candidates have been out of college and to the fact that they are required to take the same examination as recent graduates. Justice to such candidates, most of whom have already been licensed, but who, for good reasons, may desire to change their locations, is the strongest argument for interstate reciprocity in medical licensure, or for special percentage allowances at the examinations for years of practice. The total number of these candidates will naturally diminish each year as increased reciprocal relations are established, since, as a rule, the states which do not have reciprocal relations with other states (e. g., California, Florida, Washington, see Table L) examined the largest numbers of old practitioners.

Graduates of 1911 Examined During 1911

Table C also gives the results for the graduates of 1911 who were examined during the year by state boards, and

(Continued on Page 1594)

Marginal Number	NAME OF COLLEGE	1 Alabama P	1 Alabama F	2 Arizona P	2 Arizona F	3 Arkansas P	3 Arkansas F	4 California P	4 California F	5 Colorado P	5 Colorado F	6 Connecticut P	6 Connecticut F	7 Delaware P	7 Delaware F	8 District of Columbia P	8 District of Columbia F	9 Florida P	9 Florida F	10 Georgia P	10 Georgia F	11 Idaho P	11 Idaho F	12 Illinois P	12 Illinois F	13 Indiana P	13 Indiana F	14 Iowa P	14 Iowa F	15 Kansas P	15 Kansas F	16 Kentucky P	16 Kentucky F	17 Louisiana P	17 Louisiana F	18 Maine P	18 Maine F	19 Maryland P	19 Maryland F	20 Massachusetts P	20 Massachusetts F	21 Michigan P	21 Michigan F	Marginal Number
	ALABAMA																																											
1	Birmingham Medical College.—R	20	8															2	0	2	1																								1
2	University of Alabama, Med. Dept.—R	41	16	1	0													4	1	1	0													1	0										2
	ARKANSAS																																											
3	College of Physicians and Surgeons.—R			1	1	15	6																											2	2									3
4	University of Arkansas, Med. Dept.—R					22	1																	1	0					0	1			1	1									4
	CALIFORNIA																																											
5	California Eclectic Med. College.—E							1	1																																			5
6	College of P. and S., Los Angeles.—R			2	0			5	2																																			6
7	College of P. and S., San Francisco.—R							13	4																																			7
8	Cooper Medical College.—R							35	16																																	1	0	8
9	Hahnemann Medical College of the Pacific.—H							7	6																																			9
10	Oakland College of Medicine and Surgery.—R																																										10
11	University of California, Med. Dept.—R			1	0			15	0															1	0																			11
	COLORADO																																											
12	University of Colorado, Medical Dept.—R									19	0											3	0							1	0													12
	CONNECTICUT																																											
13	Yale Medical School											25	1					1	0							1	0									1	0	1	0	3	0			13
	DISTRICT OF COLUMBIA																																											
14	George Washington University.—R							2	0					1	0	11	2																			3	0	1	0					14
15	Georgetown University, School of Med.—R	1	0					2	0			0	1			4	0																			1	1							15
16	Howard University, Medical Dept.—R													1	0	2	2	1	0																	4	1	1	0					16
	GEORGIA																																											
17	Atlanta College of Physicians and Surg.—R	2	2			1	0	2	0									8	4	45	1													2	0									17
18	Atlanta School of Medicine.—R	2	2															8	1	43	4													0	1									18
19	Georgia College of Eclectic Med. and S.—E																																											19
20	Hospital Medical College, Atlanta.—E																			0	1																							20
21	Medical College of Georgia.—R	0	1															2	1	25	4																	0	1					21
	ILLINOIS																																											
22	Bennett Medical College.—R					2	0	2	0	0	1											1	0	19	16	1	0			0	1			1	0									22
23	Chicago College of Med. and Surg.—R					1	0			1	0			1	0			3	0	1	0	0	1	60	21	3	0	0	1	2	0	1	0	1	0					1	0			23
24	College of Medicine and Surgery.—Ph.M																							4	11																			24
25	College of Physicians and Surgeons.—R			1	0	1	0	10	3													4	1	57	28			3	0	1	0									1	0			25
26	Hahnemann Medical College and Hospital.—H			1	1			1	0											1	0			13	7			2	1							1	1							26
27	Hering Medical College.—H							0	1															5	2																			27
28	Jenner Medical College.—R																							7	8																			28
29	National Medical University.—P																							2	4																			29
30	Northwestern University Medical School.—R			3	0			14	1	1	0	1	0									4	2	110	14	5	0	8	0	1	0													30
31	Reliance Medical College.—R																							4	5																			31
32	Rush Medical College.—R			4	0			19	2									2	0	1	0	3	0	59	3	2	0	1	0	1	1									1	0			32
	INDIANA																																											
33	Indiana University, School of Medicine.—R							1	0															0	1	53	2																	33
	IOWA																																											
34	Drake University, College of Medicine.—R																											14	0															34
35	State University of Iowa, College of Med.—R			0	1			2	1																			23	0															35
36	State University of Iowa, Homeo. Dept.—H							2	0																			3	0															36
	KANSAS																																												
37	Kansas Medical College.—R					1	0															0	1							10	2											37
38	University of Kansas, School of Medicine.—R																													16	0													38
	KENTUCKY																																												
39	Louisville National Medical College.—R							0	1									0	1					0	1									2	3									39
40	University of Louisville, Medical Dept.—R	1	0			2	3	0	1									4	1			1	0	3	2	18	4	1	0	1	1	72	22	3	2	1	0							40
	LOUISIANA																																												
41	Flint Medical College.—R						0	1																										1	2									41
42	Tulane University, Medical Dept.—R	14	6	1	0	8	0	1	0									3	0	1	0													72	6									42
	MAINE																																											
43	Medical School of Maine.—R							3	0																			1	0							13	1			3	1			43
	MARYLAND																																											
44	Baltimore Medical College.—R			1	0	1	0	2	0			6	5	2	0			2	0	1	0															4	1	15	3	7	1	1	0	44
45	College of Physicians and Surgeons.—R							1	3			9	3	1	0																					1	0	17	2	5	1			45
46	Johns Hopkins University, Medical Dept.—R	3	0					8	0			3	0			1	0	1	0	3	0											1	0			11	0	40	2	1	0	3	0	46
47	Maryland Medical College.—R							0	1			0	3							1	4									1	1			0	1	3	1	11	13	3	2			47
48	University of Maryland, School of Med.—R											0	1	3	0			5	0	1	0															1	1	37	8	2	2			48
	MASSACHUSETTS																																											
49	Boston University School of Medicine.—H											1	0																							3	0			13	1			49
50	College of Physicians and Surgeons.—R											1	2					2	0	1	0															12	4			7	11			50
51	Harvard Medical School.—R							5	0			2	0							1	0			4	0	1	0					1	0			6	0			58	3	1	0	51
52	Tufts College Medical School.—R	1	0									2	0																							12	0			54	10			52
	MICHIGAN																																											
53	Detroit College of Medicine.—R																							1	0																	42	1			53
54	Detroit Homeopathic College.—H																																									6	0			54
55	Univ. of Mich., Dept. of Med. and Surg.—R	1	0	1	0			8	1							1	1					3	0	3	0	2	0			1	0									2	0	50	0	55
56	Univ. of Mich., Homeo. College.—H							1	1																																	13	0	56
	MINNESOTA																																											
57	Univ. of Minn., College of Med. and Surg.—R							2	1															1	0																			57
58	Hamline University, Med. Dept.—R																																											58
	MISSISSIPPI																																												
59	Mississippi Medical College.—R																																												59
	MISSOURI																																												
60	American Medical College.—E							1	0	0	1																																	60
61	Barnes Medical College.—R	0	1			1	2	1	0	0	1							1	0	1	0			16	11			1	0	0	1													61
62	Eclectic Medical University, Kansas City.—E						11	0														1	0		1						1	5											62
63	Ensworth Medical College.—R							1	1															0	1			1	0	0	1					1	0							63
64	Kansas City Hahnemann Med. College.—H						5	1			3	1													1			1	0		1													64
65	St. Louis University, School of Medicine.—R							5	2	1	0							1	0			1	0	24	4					1	1													65
66	St. Louis College of Phys. and Surg.—R					1	2			0	1							1	0	0	2	0	2	1	3					0	3			0	1									66
67	University Medical College, Kansas City.—R			0	1	2	0																	0	1					7	3													67
68	Washington University, Medical Dept.—R			1	1			1	0															11	0					1	0													68
		1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21		

R—Regular; H—Homeopathic; E—Eclectic; Ph.M.—Physiomedical; P—Panpathic

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Marginal Number	22 Minnesota	23 Mississippi	24 Missouri	25 Montana	26 Nebraska	27 Nevada	28 New Hampshire	29 New Jersey	30 New Mexico	31 New York	32 North Carolina	33 North Dakota	34 Ohio	35 Oklahoma	36 Oregon	37 Pennsylvania	38 Rhode Island	39 South Carolina	40 South Dakota	41 Tennessee	42 Texas	43 Utah	44 Vermont	45 Virginia	46 Washington	47 West Virginia	48 Wisconsin	49 Wyoming	Totals: Examined—Passed	Examined—Failed	Percentage of Failures	No. States Ex. in	Marginal Number
	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P	P F	P F	P F	P F	P F					
1														2 0				1 0		1 0									35	26	9	25.7	5	1
2			1 1															1 0						1 0					49	33	16	23.2	9	2
3														2 2															32	21	11	34.4	6	3
4														2 2							1 0								38	32	6	15.8	6	4
5																													2	1	1	50.0	1	5
6																													12	10	2	16.7	2	6
7																													17	13	4	23.5	2	7
8																													28	26	2	7.1	2	8
9																													7	7	0	0.	1	9
10																																	10	
11										0 2				1 0															30	18	2	10.0	5	11
12										0 2						1 0								2 0					28	26	2	7.1	6	12
13										6 3						1 0	3 0							1 6					47	43	4	8.5	10	13
14				1 0						3 0	1 0				2 0			1 0		1 0			2 0	1 0	1 0			35	33	2	5.7	16	14
15										3 0						2 1								1 0					19	18	3	15.8	10	15
16		0 1	1 0					1 0		2 1	1 0			1 1		2 1		1 0		2 0	1 0			6 2		5 0			46	37	9	19.6	20	16
17		1 1									1 1			1 0				3 0			1 0							77	67	10	13.0	11	17
18		3 1	1								1 1							0 1			1 0							68	57	11	16.2	7	18
19																		0 1			1 0							2	1	1	0.	1	19
20																		0 1										2	2	0	100.0	2	20
21																		6 1										41	33	8	19.5	5	21
22	1 0		1 0	0 1						0 1				1 0		1 0				0 2					1 1		5 0	61	36	25	41.0	18	22
23				2 0						0 1	0 1			1 0	0 1	2 0				2 0							1 0	110	84	26	23.6	22	23
24										0 2																		15	4	11	73.3	1	24
25	1 0		1 0	1 1	2 2	0				1 0		1 0		2 1	1 1	1 0		7 0	1 0		1 0			7 1		5 0			143	114	29	20.3	22	25
26										1 0				1 0	2 1	1 0		2 0			1 0			1 1	1 1				43	28	15	35.0	14	26
27														1 0														1 0	7	3	4	57.1	2	27
28															1 0														16	8	8	50.0	2	28
29																													8	3	5	62.5	3	29
30	4 0		1 0	7 1								2 0		2 0	7 1			5 0	3 0		8 0				6 1		11 0		223	205	20	9.0	21	30
31																													9	4	5	55.6	1	31
32	4 0			4 0	2 0					1 0			1 0	4 0	5 1			1 0		5 0				1 0	1 0	9 4		3 0	146	135	11	7.5	24	32
33																0 1												0 1	59	54	5	8.5	5	33
34												2 0								2 1					0 2				20	17	3	15.0	3	34
35				1 0										1 1						3 0					2 1				38	34	4	10.5	8	35
36														1 0															6	6	0	0.	3	36
37																													16	12	4	25.0	4	37
38														0 1															20	19	1	5.0	2	38
39		0 1								1 0				1 0						1 0									11	4	7	63.6	7	39
40		4 2	5 3	0 1							1 0	1 0		3 1	0 2	7 5		3 0		24 0	5 1			1 2	0 2	15 4	2 0		237	178	59	24.8	27	40
41														1 1															6	2	4	66.7	3	41
42		2 1								0 1	4 0			3 0				1 0		2 0	6 0				1 0				127	119	8	6.3	15	42
43							1 1			2 1							1 0								0 1				29	24	5	17.2	8	43
44	1 0						1 1	1 1		9 1		1 0		1 0		7 0	2 1							2 1	1 1	8 0			98	77	17	18.1	22	44
45				1 0				2 0		8 2	0 1	1 0		2 0		8 1	2 0							0 1	13 3	3 1			91	73	18	19.8	18	45
46			3 0					3 0		17 1	1 0	1 0	5 0	1 0	2 0	6 0	1 0	2 0	0 1	1 0	1 0	2 0	1 0	1 0	2 0	1 0			119	116	3	2.5	20	46
47											1 0			0 1	2 0	3 2				1 0				5 3		10 3			114	72	42	36.8	16	47
48					1 0					0 1	11 4				2 0	11 0	2 1	1 0		2 1	2 0			2 1	2 0	1 0			116	96	20	17.2	18	48
49	1 0									3 0						1 0													25	24	1	4.0	7	49
50							2 0					0 1											0 1						29	24	5	17.2	9	50
51	1 0		2 0				2 0	4 0		7 2			1 0	1 0	1 0	2 0	7 0						2 0		4 0			130	115	15	11.5	27	51
52			1 0				2 0			3 2						1 0	3 1				1 0		1 0		1 1			98	83	15	15.3	12	52
53																1 0				1 0									46	45	1	2.2	4	53
54																										0 1			7	6	1	14.3	2	54
55	1 0		1 0	4 0				1 1		1 1		1 0	1 0	2 0	2 0	2 0	1 0			2 0				1 0	5 2	1 0	1 0		105	99	6	5.7	27	55
56										2 0			1 0			1 0									1 0				21	20	1	4.8	7	56
57	19 0			2 0								1 0				1 0		6 0							6 0				41	38	3	7.3	8	57
58	10 4																								1 0				19	15	4	21.1	3	58
59		7 17														2 1													27	9	18	66.7	2	59
60			9 3											2 1															18	13	5	27.8	5	60
61			24 9	0 1								1 0		3 0	1 1					2 0	1 0				2 1		1 0		83	55	28	33.7	17	61
62															0 1														19	13	6	31.6	4	62
63			2 1	2 1		8 4									0 1			1 0											29	17	12	41.4	10	63
64			4 1	2 1											0 1														9	6	3	33.3	6	64
65			25 1	2 0									1 0	4 0	1 1										0 1		1 0		88	77	11	12.5	14	65
66		0 1	13 8	0 1	1 0				0 1					4 1		0 1		2 0			1 0	1 0			1 1				52	25	27	51.9	16	66
67			21 4	1 0	2 0									4 0											1 1				48	38	10	20.8	9	67
68			32 1							1 0										3 0		1 0			1 2				56	52	4	7.1	9	68
	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49					

Marginal Number	NAME OF COLLEGE	1 Alabama		2 Arizona		3 Arkansas		4 California		5 Colorado		6 Connecticut		7 Delaware		8 District of Columbia		9 Florida		10 Georgia		11 Idaho		12 Illinois		13 Indiana		14 Iowa		15 Kansas		16 Kentucky		17 Louisiana		18 Maine		19 Maryland		20 Massachusetts		21 Michigan		Marginal Number
		P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	
	NEBRASKA																																									
69	John A. Creighton Medical College.—R																	1	0	0	1	2	1					4	0	1	0													69
70	Lincoln Medical College.—E																																										70
71	University of Nebraska, College of Med.—R																																										71
	NEW HAMPSHIRE																																										
72	Dartmouth Medical School.—R																																			3	0			4	0			72
	NEW YORK																																										
73	Albany Medical College.—R							1	0			1	0					1	0					1	0			1	0									3	1			73
74	Columbia University, Coll. of P. and S.—R							3	1									2	0	1	0															5	1	1	0	74
75	Cornell University Medical College.—R							3	0			2	0											1	0													4	0			75
76	Eclectic Med. Coll., of City of New York.—E																																										76
77	Fordham University, School of Medicine.—R																																	1	0								77
78	Long Island College Hospital.—R							2	0			2	0									1	0											1	0			2	0			78
79	New York Homeo. Med. Coll. and Hosp.—H											1	0	1	0																											79
80	New York Med. Coll. and Hosp. for Women.—H																	1	0																							80
81	Syracuse University, College of Medicine.—R							2	1									1	0																							81
82	Univ. and Bellevue Hosp. Med. Coll.—R			3	0			1	0			1	0			1	0							1	0													1	0			82
83	University of Buffalo, Medical Dept.—R																	1	0																							83
	NORTH CAROLINA																																										
84	Leonard School of Medicine.—R	1	1															2	0	0	4							1	0													84
85	North Carolina Medical College																																										85
	OHIO																																										
86	Cleveland College of P. and S.—R							2	1															1	0																	86
87	Cleveland-Pulte Medical College.—H							0	1																	1	0													1	0	87
88	Eclectic Medical College.—E					1	0	1	0													1	0	0	1	4	1					2	0								88
89	Ohio-Miami Medical College.—R															0	1					2	0			4	0					2	0								89
90	Starling-Ohio Medical College.—R																									1	0														90
91	Toledo Medical College.—R																																									91
92	Western Reserve University, Med. Dept.—R			2	0			3	0																																92
	OREGON																																									
93	Willamette University, Medical Dept.—R																																									93
94	University of Oregon, Medical Dept.—R							0	1																																94
	PENNSYLVANIA																																									
95	Hahnemann Medical Coll. and Hosp.—H							0	1					1	0											3	0							2	0	1	0					95
96	Jefferson Medical College.—R	2	0					2	0			3	1	6	0	1	1	1	0	2	0	2	0	1	0	3	0	1	0					1	0	2	0	8	0			1	0	96
97	Medico-Chirurgical Coll. of Philadelphia.—R							3	0	1	0			2	0			1	0							1	0									1	0	1	1			97
98	Temple University, Medical Dept.—R											0	1																							2	0	2	0					98
99	Univ. of Pennsylvania, Dept. of Med.—R							8	1			0	1	2	0			2	0					5	2			1	0							6	0	6	1	4	0	1	0	99
100	Univ. of Pittsburgh, School of Medicine.—R							2	0																			1	1													100
101	Womans Medical College of Pennsylvania.—R							3	0					1	0	1	0							2	0							1	0					10	2	3	0			101
	SOUTH CAROLINA																																										
102	Med. Coll. of the State of South Carolina.—R	1	0															3	3	1	0																					102
	TENNESSEE																																									
103	College of Phys. and Surgs., Memphis.—R	0	1																													1	1								103
104	Memphis Hospital Medical College.—R	0	7			9	5											5	1													20	16								104
105	Meharry Medical College.—R	1	1			4	10	0	1									2	1	4	1			1	4					2	2	2	2			0	1				105
106	Lincoln Memorial University, Med. Dept.—R									1	0							1	0			0	1									0	1								106
107	University of Tennessee, Medical Dept.—R	7	4	1	0	3	1	0	1									3	1	2	0	0	1													1	0				107
108	University of West Tennessee, Med. Dept.—R																	0	2	0	1																				108
109	Vanderbilt University, Medical Dept.—R	6	2			6	6											3	0	2	1											1	0	1	0						109
	TEXAS																																										
110	Baylor University, College of Medicine.—R																															2	0								110
111	Fort Worth University, Medical Dept.—R																											1	0												111
112	Southwestern University Medical College.—R																																									112
113	University of Texas, Dept. of Med.—R							1	0															1	0							1	0								113
	VERMONT																																									
114	University of Vermont, College of Med.—R											4	0																					3	0			13	3			114
	VIRGINIA																																									
115	Medical College of Virginia.—R																																					1	0			115
116	University of Virginia, Dept. of Med.—R	2	0			1	0					2	0			1	1			1	0					1	0							1	0	1	0					116
117	University College of Medicine.—R											1	0																									0	1			117
	WISCONSIN																																									
118	Marquette University, Medical Dept.—R																									1	0															118
119	Wisconsin College of Phys. and Surgs.—R																																									119
	CANADIAN																																									
120	Laval University, Medical Dept			1	0																													0	2			1	4			120
121	Manitoba Medical College							1	0																																	121
122	McGill University, Medical Faculty							1	0			1	0									1	0					1	0							1	0			1	0	122
123	Queens University, Medical Faculty																							1	0																	123
124	University of Toronto, Faculty of Medicine									1	0	1	0									1	1	2	0	1	0	1	0													124
125	Western University, Medical Dept.																							0	1									1	0							125
126	Foreign Colleges					1	0	6	5			1	0					3	0					3	1	3	0									1	0	6	3	1	0	126
127	Miscellaneous Medical Colleges	1	3	3	4	7	0	18	15	5	4	1	1					6	4	5	4	9	2	6	9	5	0	3	2	7	5	3	7	4	1	1	0	0	3	6	5	2	0	127
128	Undergraduates																					1	1															11	24				128
	Totals by States	161		37		138		286		41		93		22		33		110		176		54		586		121		81		81		124		153		97		199		300		138	
	Totals—Examined—Passed	107		28		108		227		33		78		22		25		87		148		41		432		114		75		56		88		133		86		160		226		127	
	Totals—Examined—Failed	54		9		30		59		8		20		0		8		29		28		13		154		7		6		25		36		20		11		39		74		11	
	Percentage of Failures	33.5		24.3		21.7		20.6		19.5		21.5		0.		24.2		20.9		15.9		24.1		26.2		5.5		7.4		30.9		29.0		19.6		11.2		19.6		24.7		8.8	
		1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21	

B—Regular; H—Homeopathic; E—Eclectic; Ph.M—Physiomedical; P—Panpathic.

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Marginal Number	22 Minnesota	23 Mississippi	24 Missouri	25 Montana	26 Nebraska	27 Nevada	28 New Hampshire	29 New Jersey	30 New Mexico	31 New York	32 North Carolina	33 North Dakota	34 Ohio	35 Oklahoma	36 Oregon	37 Pennsylvania	38 Rhode Island	39 South Carolina	40 South Dakota	41 Tennessee	42 Texas	43 Utah	44 Vermont	45 Virginia	46 Washington	47 West Virginia	48 Wisconsin	49 Wyoming	Totals:	Examined—Passed	Examined—Failed	Percentage of Failures	No. States Ex. in	Marginal Number
	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P	P F	P F	P F	P F	P F					
69			0 1	3 0	29						1	1 0			1 0			0 1	5 1						4 1			2 0	61	53	8	13.1	14	69
70				8 1	3																					0 1			12	8	4	33.3	2	70
71				9	0														1 0										10	10	0	0.	2	71
72							3 1			4 0						1 0					1 0								17	16	1	5.9	6	72
73								2 0		37 16														1 0				65	48	17	26.2	9	73
74						1 0		3 0		84 11	1 0		1 0	3 1	1 0		1 0			3 0		1 0	1 0	2 0		1 0		114	100	14	12.3	19	74
75								3 0		40 13			1 0					1 0										57	55	2	3.5	7	75
76								14 0		12 5												2 0						20	15	5	25.0	3	76
77										9 5																		15	10	5	33.3	7	77
78			1 0					7 1		82 25					1 0	1 0												127	101	26	20.5	11	78
79	1 0					1 0		1 0		18 6					1 0									1 0				30	24	6	20.0	7	79
80										4 3																		7	5	2	28.6	2	80
81										24 4					0 1													33	27	6	18.2	4	81
82								7 0		62 7	2 0																	37	30	7	8.0	2	82
83										41 7			1 0	2 0	4 0										1 1			58	50	8	13.8	5	83
84			1 0								4 8		1 1		1 1		2 3						8 9		1 1			51	23	28	54.9	11	84
85											2 1						2 0						0 1					26	24	2	7.7	2	85
86												22 9																26	25	1	3.8	3	86
87												9 1		1 2	7 1													28	20	8	28.1	8	87
88			1 0							62		8 3			7 0									0 1	1 0			28	20	8	21.1	11	88
89										0 1		24 1												0 1	1 0			46	43	3	6.5	7	89
90												50 1		0 1	2 0	1 0												56	54	2	3.6	5	90
91												8 0																8	8	0	0.	1	91
92	1 0										1	0 14	0	1 0		1 0		0 1								1 0	1 0	28	25	1	3.8	10	92
93															1 1									0 1				3	1	2	66.7	2	93
94						1 0									15 4									1 1				21	15	6	28.6	4	94
95								5 2		23			1 0	1 0	2 0	23 1							0 1					60	50	10	16.7	12	95
96	2 0	1 0		2 0	1 0			9 0		23			3 0	2 0	4 1	80 6			1 0			3 0	2 1	2 0	3 0		1 0	1 0	169	162	7	4.2	33	96
97								13 0		0 1			2 0	1 0	0 76	1						1 0		1 0				107	104	3	2.8	14	97
98															24 0			1 0										30	29	1	3.3	5	98
99	2 0	1 0	1 0					23 0		17 2	9 0		1 0	1 0	1 0	87 3	2 0	2 0			1 0		1 0	0 1	6 1	2 0	3 0		208	197	12	5.7	29	99
100													3 0	1 0		98 1								1 0	4 0			72	70	2	2.8	7	100
101								1 0				1 0				21 0							3 0					54	50	4	7.4	17	101
102											2 0							47 11										68	54	14	20.6	5	102
103		2 1																		4 0	1 0							11	8	3	27.3	5	103
104		10 6		1 1						0 1			4 3	1 0				1 2		14 1	9 2							115	72	43	37.4	12	104
105		1 6	7 2										8 5					0 3		16 1	2 0			5 2		1 0		130	57	53	48.2	18	105
106										1 1			1 1	0 1				1 0		11 3				1 1	1 1	0 1		35	18	17	48.6	14	106
107		4 3	2 0	1 0						1 0	3 0		0 1			7 3		0 1		7 5	2			1 0	0 1			69	51	18	26.1	22	107
108		0 1									0 1					0 2				0 2				0 2				14	1	13	92.9	7	108
109		2 0								1 0	1 0		2 0			3 0		1 0		3 0	3 1							30	26	4	11.1	13	109
110													1 0															14	14	0	0.	3	110
111													1 0							11 0								24	23	1	4.2	3	111
112																				21 1								15	15	0	0.	1	112
113								1 0					2 0							15 0								54	54	0	0.	6	113
114							1 0					1 0			1 0	1 0	0 1			48 0			41 0		1 1			71	66	5	7.0	10	114
115										0 1	4 2							2 0						22 1		2 0		45	41	4	8.9	6	115
116		1 0								2 0					1 0			1 0		1 0				11 1	1 0	1 0		22	20	2	9.1	17	116
117				1 0						2 0	16 2													19 1		4 1		51	45	6	11.8	8	117
118	1 1			2 1	1 0										1 0					2 0					1 0		49 4	1 0	65	56	6	9.2	9	118
119																											18 0		18	18	0	0.	1	119
120	2 1			0 1			1 1									1 1												16	6	10	62.5	7	120
121																												1	1	0	0.	1	121
122	2 0			1 0				2 0		4 1			1 0		1 0	1 0	2 0							2 0	1 1			25	23	2	8.0	16	122
123	1 0							1 0		3 2					1 1	1 0	1 0								1 0	2 0		15	11	4	26.7	8	123
124	3 0									9 1		1 0			2 0	1 0		3 0							2 1	1 0		32	28	3	9.4	14	124
125				1 0	1 0							1 0	1 0														1 0	7	6	1	14.3	7	125
126				1 0						20 23			2 0		1 1	9 3												116	71	45	38.8	21	126
127	0 1	1 5	4 1	2 0	3 1	1 1		2 1	5 4	2 2	2 5	1 1	0 2	11 14	15 5	6		4 1	3 1	3 4	8 2	2 2	1 0	6 5	13 5	4 3	1 0	2 0	356	210	146	41.0	45	127
128															7 7					110 30				0 1					330	203	127	38.5	6	128
	65	228	220	63	78	9	23	122	4	700	122	26	178	162	144	542	37	121	58	255	170	25	52	158	145	110	114	8	6660					
	58 7	115 113	182 38	44 19	67 11	8 1	18 5	107 15	2 2	536 164	92 30	25 1	170 8	123 39	94 50	515 27	32 5	94 27	53 5	213 42	151 19	22 3	51 1	115 43	102 43	88 22	107 7	8 0	5578	1382				
	10.8	49.6	17.3	30.1	14.1	11.1	21.8	12.3	50.0	23.4	24.6	3.8	4.5	24.1	37.4	5.0	13.5	22.3	8.6	16.5	11.2	12.0	1.9	27.3	29.7	20.0	6.1	0.				19.9		
	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49						

Marginal Number	NAME OF COLLEGE	1 Alabama	2 Arizona	3 Arkansas	4 California	5 Colorado	6 Connecticut	7 Delaware	8 District of Columbia	9 Florida	10 Georgia	11 Idaho	12 Illinois	13 Indiana	14 Iowa	15 Kansas	16 Kentucky	17 Louisiana	18 Maine	19 Maryland	20 Massachusetts	21 Michigan	Marginal Number
		P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	
	ALABAMA																						
1	Birmingham Medical College.—R	20 8								12 0	2 1												1
2	University of Alabama, Medical Dept.—R	41 14	1 0							4 0	1 0						1 0						2
	ARKANSAS																						
3	College of Physicians and Surgeons.—B		1 1	15 6													2 2						3
4	University of Arkansas, Medical Dept.—R			23 1									1 0			0 1	0 1						4
	CALIFORNIA																						
5	California Eclectic Medical College.—E																						5
6	College of P. and S., Los Angeles.—H		2 0		8 2																		6
7	College of P. and S., San Francisco.—H				12 3																		7
8	Cooper Medical College.—R				25 12																		8
9	Hahnemann Medical College of the Pacific.—H				7 0																		9
10	Oakland College of Medicine and Surgery.—R																						10
11	University of California, Medical Dept.—R		1 0		15 0								1 0										11
	COLORADO																						
12	University of Colorado, Medical Dept.—R					19 0						3 0				1 0							12
	CONNECTICUT																						
13	Yale Medical School						25 1											1 0	1 0	1 0	2 0		13
	DISTRICT OF COLUMBIA																						
14	George Washington University.—R				2 0			11 2						1 0				3 0	1 0				14
15	Georgetown University, School of Medicine.—R	1 0			2 0		0 1	4 0						1 0		1 0		1 1	1 0				15
16	Howard University, Medical Dept.—R						1 0	3 2	1 0					1 0		1 0		4 1	1 0				16
	GEORGIA																						
17	Atlanta College of Physicians and Surgeons.—R	2 3		1 0						7 4	45 1						1 0						17
18	Atlanta School of Medicine.—R	2 2								8 1	43 4						0 1						18
19	Georgia College of Eclectic Med. and Surg.—E																						19
20	Hospital Medical College, Atlanta.—E										0 1												20
21	Medical College of Georgia.—R	0 1								2 1	25 4									0 1			21
	ILLINOIS																						
22	Bennett Medical College.—R			2 0	2 0	0 1							19 16	1 0		0 1							22
23	Chicago College of Medicine and Surgery.—R					1 0		1 0		3 0	1 0	0 1	66 21	5 0	0 1	2 0	1 0	1 0				1 0	23
24	College of Medicine and Surgery.—Ph.M												4 10										24
25	College of Physicians and Surgeons.—R				4 0							3 1	55 20		3 0							1 0	25
26	Hahnemann Medical College and Hospital.—H										1 0		13 6		2 1			1 1					26
27	Hering Medical College.—H				0 1								5 5										27
28	Jenner Medical College.—R												2 7										28
29	National Medical University.—P												2 4										29
30	Northwestern University, Medical School.—R		1 0		10 0	1 0						4 2	130 14	4 0	7 0	1 0							30
31	Reliance Medical College.—R												4 5										31
32	Rush Medical College.—R		3 0		4 0							2 0	56 2	1 0	1 0	1 1						1 0	32
	INDIANA																						
33	Indiana University, School of Medicine.—R				1 0								0 1	58 2									33
	IOWA																						
34	Drake University, College of Medicine.—R												7		14 0								34
35	State Univ. of Iowa, College of Medicine.—R		0 1		2 0								23 0										35
36	State Univ. of Iowa, Homeo. Dept.—H				1 0								5 0										36
	KANSAS																						
37	Kansas Medical College.—R															9 3							37
38	University of Kansas, School of Medicine.—R															16 0							38
	KENTUCKY																						
39	Louisville National Medical College.—R									0 1			0 1				2 3						39
40	University of Louisville, Medical Dept.—R	1 0		2 3						2 1			3 2	17 4	1 0	1 1	72 22	8 2	1 0				40
	LOUISIANA																						
41	Flint Medical College.—R																	1 2					41
42	Tulane University, Medical Dept.—R	13 6	1 0	7 0	1 0					1 0							71 0						42
	MAINE																						
43	Medical School of Maine.—R				3 0													11 1		1 1			43
	MARYLAND																						
44	Baltimore Medical College.—R		1 0	1 0			6 4	2 0		1 0								8 1	15 3	7 1	1 1	0	44
45	College of Physicians and Surgeons.—R				1 0		9 3	1 0										1 0	17 2	5 1			45
46	Johns Hopkins University, Medical Dept.—R	3 0			3 0		5 0		1 0		3 0					1 0		1 0	30 2		3	0	46
47	Maryland Medical College.—R				0 1		0 2				1 4				1 1		0 1	3 1	11 12	2 1			47
48	University of Maryland, School of Med.—R						0 1	3 0		4 0	1 0							1 1	38 6	2 2			48
	MASSACHUSETTS																						
49	Boston University, School of Medicine.—H						1 0											2 0		13 1			49
50	College of Physicians and Surgeons.—R						1 2			2 0	1 0							13 4		7 11			50
51	Harvard Medical School.—R				3 0		2 0						3 0	1 0		1 0		5 0		38 5	1	0	51
52	Tufts College Medical School.—R	1 0					1 0											13 0		38 10			52
	MICHIGAN																						
53	Detroit College of Medicine.—R																				42	1	53
54	Detroit Homeopathic College.—H																				6	0	54
55	Univ. of Mich., Dept. of Med. and Surg.—R	1 0			3 0			0 1			3 0	3 0	2 0							1 0	48	0	55
56	Univ. of Mich., Homeo. College.—H																				13	0	56
	MINNESOTA																						
57	Univ. of Minn., Coll. of Med. and Surg.—R																						57
58	Hamline University, Medical Dept.—R																						58
	MISSISSIPPI																						
59	Mississippi Medical College.—R																						59
	MISSOURI																						
60	American Medical College.—E			1 0																			60
61	Barnes Medical College.—R	0 1		0 2		0 1							16 11		1 0	0 1							61
62	Eclectic Medical University, Kansas City.—E			11 0								1 0				0 5							62
63	Ensworth Medical College.—R			1 1									0 1		1 0	0 1							63
64	Kansas City Hahnemann Medical College.—H			5 0		3 1							1 0			1 1							64
65	St. Louis University, School of Medicine.—R				3 0	1 0						1 0	24 4			1 0							65
66	St. Louis College of Phys. and Surgs.—R			1 2					1 0	0 1		0 1	1 5			0 3	0 1						66
67	University Medical College, Kansas City.—R		0 1	1 0									0 1			7 3							67
68	Washington University, Medical Dept.—R												11 0			1 0							68
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	

R—Regular; H—Homeopathic; E—Eclectic; Ph.M—Physiomedical; P—Panpathic.

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Marginal Number	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	Totals:	Examined—Passed	Examined—Failed	Percentage of Failures	No. States Ex. in	Marginal Number
	Minnesota	Mississippi	Missouri	Montana	Nebraska	Nevada	New Hampshire	New Jersey	New Mexico	New York	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia	Washington	West Virginia	Wisconsin	Wyoming						
	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F						
1																		1 0											35	26	9	25.7	5	1
2		1 0												1 0				1 0		1 0									65	51	14	21.5	8	2
3														2 2															22	21	11	34.4	4	3
4														5 3							1 0								36	30	6	16.7	6	4
5																																		5
6																													12	10	2	16.7	2	6
7																													15	12	3	20.0	1	7
8																													17	15	2	7.5	1	8
9																													7	7	0	0.	1	9
10																																		10
11														1 0															18	18	0	0.	4	11
12										0 2															1 0				28	24	2	7.7	5	12
13										6 3						1 0	3 0								1 0				44	40	4	9.1	6	13
14										3 0	6 1	0			2 0			1 0		1 0				2 0	1 0	1 0			32	30	2	6.2	13	14
15										2 0	6 0					2 1													15	12	3	20.0	2	15
16		0 1	1 1	0				1 0		2 0	1 1	0		1 0		2 1		1 0		2 0	1 0			6 2		3 0			48	37	8	17.8	29	16
17		0 1									1 1			1 0				3 0											71	61	10	14.1	9	17
18		3 1									1 1							0 1											68	57	11	16.2	7	18
19																					1 0								11	9	1	9.	1	19
20																		0 1											2	0	2	100.0	2	20
21																		0 1											41	33	8	19.5	5	21
22	1 0		1 0	2 0	1 0					0	1 0	1		1 0		1 0			0 2		0 1					4 0		55	32	23	41.8	12	22
23										0	1 0			2 0	1 0	2 0		1 0	7 0	1 0	2 0					1 0		100	68	32	32.0	21	23
24	1 0		1 0	0 1	1 0					1	0 1			2 0	0 1	0 1			1 0										14	4	10	71.4	1	24
25										0	1 1			1 0							1 0			1 1	5 1	5 0			116	93	23	19.8	17	25
26														1 0															34	24	10	29.4	12	26
27																					1 0			1 1	1 0				12	8	4	33.3	4	27
28																													14	7	7	50.0	1	28
29																													6	2	4	66.7	1	29
30	4 0		1 0	6 0							2 0			1 0	3 0				3 0	3 0				8 0		7 0		198	181	17	8.6	19	30
31	4 0		3 0										1 0	0 1	3 0				4 0		1 0			5 0		2 0		99	95	4	4.0	17	31
32																											0 1		58	54	4	6.9	4	32
33																			1 0										15	15	0	0.	2	33
34				1 0							1 0				1 0				2 0					2 1					32	30	2	6.2	8	34
35															1 0														5	5	0	0.	3	35
36																																		36
37			1 0																										13	10	3	23.1	2	37
38			3 0																										19	19	0	0.	2	38
39		0 1												1 0						1 0									10	4	6	60.0	6	39
40		4 2	5 2	0 1						2		1 0		2 0	0 2	7 5		3 0		24 0	5 1			1 2	0 1	12 4	2 0		225	160	65	24.9	24	40
41																													3	1	2	66.7	1	41
42		1 1								0 1	4 0			2 0				1 0		2 0	6 0				1 0				119	111	8	6.7	14	42
43							1 0			2 1							1 0								0 1				23	19	4	17.4	7	43
44	1 0			1 0			1 1	1 1		6 1	1 0		0 1	2 2		6 0	2 1								1 7	6 0			82	68	14	16.9	21	44
45				1 0			1 0	3 2		8 2	2 0		1 0	2 0		5 1	2 0					2 0	1 0		1 12	3 0			85	71	14	16.5	17	45
46			2 0					2 0		12 2	2 0		0 1	1 0	0 2	2 0	1 0	1 0		1 0	1 0				1 0	2 0	1 0		105	102	3	2.9	25	46
47							1 0	2 1		0 1	1 0			2 0	0 2	1 0		1 0							4 7	9 5			107	68	39	36.5	14	47
48					1 0					0	1 0			2 0	1 0	0 2		1 9							1 1	1 0			103	86	17	16.5	18	48
49	1 0						2 0			1	0 1																		21	20	1	4.8	6	49
50																							0 1						62	50	12	19.4	7	50
51	1 0		1 0				2 0	3 0		6 0			1 0	1 0		1 0	6 0					1 0		2 0				102	99	3	2.9	19	51
52			1 0				3 0			3 1						2 1					1 0			1 0				92	80	12	13.0	11	52
53																1 0				1 0									45	44	1	2.2	2	53
54																													7	6	1	14.3	2	54
55			1 0	3 0						1 0			1 0	1 0	1 0	1 0	1 0		2 0					3 0		1 0			78	77	1	1.3	19	55
56													1 0			1 0													15	15	0	0.	3	56
57	19 0			1 0								1 0			1 0				6 0										31	31	0	0.	6	57
58	10 4			1 0																					1 0				16	12	4	25.0	3	58
59		7 17														2 1													27	9	18	66.7	2	59
60			8 2											1 0															13	10	3	23.1	3	60
61			23 9	0 1										3 0	1 0					2 0					0 1				72	46	27	37.0	12	61
62			4 2											2 1	0 1														18	12	6	33.3	4	62
63			2 2	6 3											0 1			1 0											26	15	11	42.3	9	63
64			4 2												0 1														19	14	5	26.3	6	64
65			35 1	2 0						0 1			1 0	4 0											0 1		1 0		80	73	7	8.7	19	65
66		0 1	13 7	0 1		2 0								4 1					2 0		1 0	0 1	0						45	24	21	46.7	14	66
67			20 4											3 0															42	33	9	21.4	7	67
68			32 1																	3 0					1 1				51	49	2	3.9	6	68
	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49						

Marginal Number	NAME OF COLLEGE	1 Alabama		2 Arizona		3 Arkansas		4 California		5 Colorado		6 Connecticut		7 Delaware		8 District of Columbia		9 Florida		10 Georgia		11 Idaho		12 Illinois		13 Indiana		14 Iowa		15 Kansas		16 Kentucky		17 Louisiana		18 Maine		19 Maryland		20 Massachusetts		21 Michigan		Marginal Number
		P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	
	NEBRASKA																																									
69	John A. Creighton Medical College.—R																			0	1	1	1					4	0	1	0											69
70	Lincoln Medical College.—E																																									70
71	University of Nebraska, College of Med.—R																																									71
	NEW HAMPSHIRE																																									
72	Dartmouth Medical School—R																																	2	0			3	0			72
	NEW YORK																																									
73	Albany Medical College.—R							1	0			1	0											1	0											2	1			73
74	Columbia Univ., Coll. of Phys. and Surgs.—R							3	0																									1	0			3	0			74
75	Cornell University Medical College.—R							2	0			1	0											1	0													4	0			75
76	Eclectic Med. Coll., of City of New York.—E																																									76
77	Fordham University, School of Medicine.—R																																	1	0							77
78	Long Island College Hospital.—R							1	0			2	0																					1	0			1	0			78
79	New York Homeo. Med. Coll. and Hosp.—H											1	0	1	0																											79
80	New York Med. Coll. and Hosp. for Women.—H																																									80
81	Syracuse University, College of Medicine.—R							0	1																																	81
82	University and Bellevue Hosp. Med. Coll.—R			1	0							1	0					1	0					1	0													1	0			82
83	University of Buffalo, Medical Dept.—R																			1	0																					83
	NORTH CAROLINA																																									
84	Leonard School of Medicine.—R	1	1																	2	0	0	2					1	0													84
85	North Carolina Medical College																																									85
	OHIO																																									
86	Cleveland College of Phys. and Surgs.—R							2	0															1	0																	86
87	Cleveland-Pulte Medical College.—H																																							1	0	87
88	Eclectic Medical College.—E																					1	0	0	1	4	1					2	0									88
89	Ohio-Miami Medical College.—R															0	1					2	0			4	0					2	0									89
90	Starling-Ohio Medical College.—R																									1	0															90
91	Toledo Medical College.—R																																									91
92	Western Reserve University, Medical Dept.—R			2	0																																					92
	OREGON																																									
93	Willamette University, Medical Dept.—R																																										93
94	University of Oregon, Medical Dept.—R																																									94
	PENNSYLVANIA																																									
95	Hahnemann Medical College and Hospital.—H							0	1					1	0											3	0							3	0	1	0					95
96	Jefferson Medical College.—R	1	0					2	0			3	1	6	0	1	1			1	0	1	0	1	0	3	0	1	0					1	0	2	0	7	0			1	0	96
97	Medico-Chirurgical College of Philadelphia.—R							1	0	1	0			2	0																					1	0	1	0					97
98	Temple University, Medical Dept.—R											0	1																							2	0	2	0					98
99	Univ. of Pennsylvania, Dept. of Med.—R							4	1			0	1	1	0			2	0					2	0			1	0							5	0	6	1	3	0	1	0	99
100	Univ. of Pittsburgh, School of Medicine.—R							2	0																			1	1													100
101	Woman's Medical College of Pennsylvania.—R							3	0					1	0	1	0							1	0							1	0					10	2	3	0			101
	SOUTH CAROLINA																																									
102	Med. Coll. of the State of South Carolina.—R																	3	3																							102
	TENNESSEE																																									
103	College of Phys. and Surgs., Memphis.—R	0	1																															1	1							103
104	Memphis Hospital Medical College.—R	0	7			7	5																											19	15							104
105	Meharry Medical College.—R	1	1			4	10											2	1	4	1			1	2							2	3	2	2			0	1			105
106	Lincoln Memorial Univ., Med. Dept.—R									1	0																					0	1									106
107	University of Tennessee, Medical Dept.—R	7	6	1	0	2	1	0	1									3	1	2	0													5	0			1	0			107
108	University of West Tennessee, Med. Dept.—R																	0	2	0	1																					108
109	Vanderbilt University, Medical Dept.—R	6	2			5	0											3	0	2	1													1	0	1	0					109
	TEXAS																																									
110	Baylor University, College of Medicine.—R																																	1	0							110
111	Fort Worth University, Med. Dept.—R																											1	0													111
112	Southwestern University Medical College.—R																																									112
113	University of Texas, Dept. of Med.—R							1	0															1	0									1	0							113
	VERMONT																																									
114	University of Vermont, College of Med.—R											4	0																					2	0			11	1			114
	VIRGINIA																																									
115	Medical College of Virginia.—R																																					1	0			115
116	University of Virginia, Dept. of Med.—R		0			1	0					2	0			1	1			1	0													1	0							116
117	University College of Medicine.—R																																					0	1			117
	WISCONSIN																																									
118	Marquette University, Medical Dept.—R																									1	0															118
119	Wisconsin College of Phys. and Surgs.—R																																									119
	CANADIAN																																									
120	Laval University, Medical Dept			1	0																													0	2			0	3			120
121	Manitoba Medical College																																									121
122	McGill University, Medical Faculty																					1	0											1	0			1	0			122
123	Queens University, Medical Faculty																							1	0																	123
124	University of Toronto, Faculty of Medicine									1	0	1	0									1	0	2	0	1	0	1	0													124
125	Western University, Medical Dept																																									125
126	Foreign Colleges							0	1									1	0																	1	0	2	2	1	0	126
127	Miscellaneous Medical Colleges	1	3					1	0	5	1	0	1					2	0	2	3	3	0	1	7	2	0	3	0	2	2	2	3	3	0			0	1	3	2			127
	Totals by States	156		19		117		151		37		85		20		32		72		161		33		557		108		73		70		119		143		87		189		233		122		
	Totals—Examined—Passed	104		16		89		136		33		66		20		24		56		136		27		413		101		66		47		87		115		70		156		193		121		
	Totals—Examined—Failed	54		3		28		15		4		19		0		8		16		25		6		144		7		4		23		32		28		11		32		41		1		
	Percentage of Failures	34.2		15.8		23.9		9.9		10.8		22.4		0.		25.0		22.2		15.5		18.7		25.9		6.5		5.5		32.9		26.9		19.6		12.6		17.5		17.6		0.8		
		1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21		

R—Regular; H—Homeopathic; E—Eclectic; Ph.M—Physiomedical; P—Panpathic.

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1912

| | 22 Minnesota | | 23 Mississippi | | 24 Missouri | | 25 Montana | | 26 Nebraska | | 27 Nevada | | 28 New Hampshire | | 29 New Jersey | | 30 New Mexico | | 31 New York | | 32 North Carolina | | 33 North Dakota | | 34 Ohio | | 35 Oklahoma | | 36 Oregon | | 37 Pennsylvania | | 38 Rhode Island | | 39 South Carolina | | 40 South Dakota | | 41 Tennessee | | 42 Texas | | 43 Utah | | 44 Vermont | | 45 Virginia | | 46 Washington | | 47 West Virginia | | 48 Wisconsin | | 49 Wyoming | | Totals | Examined—Passed | Examined—Failed | Percentage of Failures | No. States Ex. in | Original Number |
|---|---|---

Marginal Number	NAME OF COLLEGE	Graduates of All Years.					Graduates of 1907-1911.					Graduates of 1906 and Previous.					Graduates of 1911.					Marginal Number
		Number Examined	Number Passed	Number Failed	Per Cent. Failed	Number of States	Number Examined	Number Passed	Number Failed	Per Cent. Failed	Number of States	Number Examined	Number Passed	Number Failed	Per Cent. Failed	Number of States	Number Examined	Number Passed	Number Failed	Per Cent. Failed	Number of States	
	ALABAMA																					
1	Birmingham Medical College.—R	35	26	9	25.7	5	35	26	9	25.7	5											
2	University of Alabama, Medical Dept.—R	69	53	16	23.2	9	65	51	14	21.5	8	4	2	2	50.0	4	41	36	5	12.2	6	
	ARKANSAS																					
3	College of Physicians and Surgeons.—R	32	21	11	34.4	4	32	21	11	34.4	4											
4	University of Arkansas, Medical Dept.—R	38	32	6	15.8	6	36	30	6	16.7	6	2	2	0	0.	2	31	26	5	16.1	5	
	CALIFORNIA																					
5	California Eclectic Medical College.—E	2	1	1	50.0	1						2	1	1	50.0	1						
6	College of Phys. and Surgs., Los Angeles.—R	12	10	2	16.7	2	12	10	2	16.7	2						8	7	1	12.5	1	
7	College of Phys. and Surgs., San Francisco.—R	17	13	4	23.5	1	15	12	3	20.0	1	2	1	1	50.0	1	6	5	1	16.7	1	
8	Cooper Medical College.—R	28	26	2	7.1	2	27	25	2	7.5	1	1	1	0	0.	1	21	21	0	0.	1	
9	Hahnemann Medical College of the Pacific.—H	7	7	0	0.	1	7	7	0	0.	1						6	6	0	0.	1	
10	Oakland College of Medicine and Surgery.—R																					
11	University of California, Medical Dept.—R	20	18	2	10.0	5	18	18	0	0.	4	2	0	2	100.0	1	14	14	0	0.	1	
	COLORADO																					
12	University of Colorado, Medical Dept.—R	28	26	2	7.1	6	26	24	2	7.7	5	2	2	0	0.	2	22	22	0	0.	4	
	CONNECTICUT																					
13	Yale Medical College	47	43	4	8.5	10	44	40	4	9.1	8	3	3	0	0.	3	15	14	1	6.7	3	
	DISTRICT OF COLUMBIA																					
14	George Washington University.—R	35	33	2	5.7	16	32	30	2	6.2	13	3	3	0	0.	3	15	14	1	6.7	5	
15	Georgetown University, School of Medicine.—R	19	16	3	15.8	10	18	15	3	16.7	9	1	1	0	0.	1	8	6	2	25.0	6	
16	Howard University, Medical Dept.—R	46	37	9	19.6	20	45	37	8	17.8	20	1	0	1	100.0	1	16	13	3	18.7	8	
	GEORGIA																					
17	Atlanta College of Phys. and Surgs.—R	77	67	10	13.0	11	71	61	10	14.1	9	6	6	0	0.	5	58	51	7	12.0	7	
18	Atlanta School of Medicine.—R	68	57	11	16.2	7	68	57	11	16.2	7						62	55	7	11.2	6	
19	Georgia College of Eclectic Med. and Surg.—E	1	1	0	0.	1	1	1	0	0.	1						1	1	0	0.	1	
20	Hospital Medical College, Atlanta.—E	2	0	2	100.0	2	2	0	2	100.0	2						2	0	2	100.0	2	
21	Medical College of Georgia.—R	41	33	8	19.5	5	41	33	8	19.5	5						35	29	6	17.1	4	
	ILLINOIS																					
22	Bennett Medical College.—R	61	36	25	41.0	18	55	32	23	41.8	15	6	4	2	33.3	5	36	28	8	22.2	8	
23	Chicago College of Medicine and Surgery.—R	130	84	26	23.6	22	109	83	26	23.9	21	1	1	0	0.	1	94	72	22	23.4	13	
24	College of Medicine and Surgery.—Ph.M	15	4	11	73.3	1	14	4	10	71.4	1	1	0	1	100.0	1	7	3	4	57.1	1	
25	College of Physicians and Surgeons.—R	143	114	29	20.3	22	116	93	23	19.8	17	27	21	6	22.2	13	71	60	11	15.5	8	
26	Hahnemann Medical College and Hospital.—H	43	28	15	35.0	14	34	24	10	29.4	12	9	4	5	55.6	7	23	18	5	21.8	5	
27	Hering Medical College.—H	12	8	4	33.3	5	11	7	4	36.3	4	1	1	0	0.	1	5	4	1	20.0	1	
28	Jenner Medical College.—R	16	8	8	50.0	2	14	7	7	50.0	1	2	1	1	50.0	2	8	5	3	37.5	1	
29	National Medical University.—P	8	3	5	62.5	2	6	2	4	66.7	1	2	1	1	50.0	2	1	0	1	100.0	1	
30	Northwestern University Medical School.—R	223	203	20	9.0	20	198	181	17	8.6	19	25	22	3	12.0	11	156	142	13	8.3	12	
31	Reliance Medical College.—R	9	4	5	55.6	1	9	4	5	55.6	1						4	1	3	75.0	1	
32	Rush Medical College.—R	146	135	11	7.5	24	99	95	4	4.0	17	47	40	7	14.9	18	68	64	4	5.9	12	
	INDIANA																					
33	Indiana University, School of Medicine.—R	59	54	5	8.5	5	58	54	4	6.9	4	1	0	1	100.0	1	53	52	1	1.9	1	
	IOWA																					
34	Drake University, College of Medicine.—R	20	17	3	15.0	3	15	15	0	0.	2	5	2	3	60.0	2	14	14	0	0.	1	
35	State University of Iowa, College of Med.—R	38	34	4	10.5	8	32	30	2	6.2	8	6	4	2	33.3	5	22	22	0	0.	2	
36	State University of Iowa, Homeo. Dept.—H	6	6	0	0.	2	5	5	0	0.	2	1	1	0	0.	1	3	3	0	0.	1	
	KANSAS																					
37	Kansas Medical College.—R	16	12	4	25.0	4	13	10	3	23.1	2	3	2	1	33.3	3	13	10	3	23.1	2	
38	University of Kansas, School of Medicine.—R	20	19	1	5.0	3	19	19	0	0.	2	1	0	1	100.0	1	19	19	0	0.	2	
	KENTUCKY																					
39	Louisville National Medical College.—R	11	4	7	63.6	7	10	4	6	60.0	6	1	0	1	100.0	1	4	2	2	50.0	2	
40	University of Louisville, Medical Dept.—R	237	178	59	24.8	27	225	169	56	24.9	24	12	9	3	25.0	8	179	145	34	19.0	19	
	LOUISIANA																					
41	Flint Medical College.—R	6	2	4	66.7	3	3	1	2	66.7	1	3	1	2	66.7	2						
42	Tulane University, Medical Dept.—R	127	119	8	6.3	15	119	111	8	6.7	14	8	8	0	0.	7	100	96	4	4.0	9	
	MAINE																					
43	Medical School of Maine.—R	29	24	5	17.2	8	23	19	4	17.4	7	6	5	1	16.7	4	15	13	2	13.3	5	
	MARYLAND																					
44	Baltimore Medical College.—R	94	77	17	18.1	23	83	69	14	16.9	21	11	8	3	27.3	10	48	43	5	10.4	11	
45	College of Physicians and Surgeons.—R	91	73	18	19.8	18	85	71	14	16.5	17	6	2	4	66.7	4	52	46	6	5.8	10	
46	Johns Hopkins University, Medical Dept.—R	119	116	3	2.5	28	105	102	3	2.9	22	14	14	0	0.	9	63	61	2	3.2	14	
47	Maryland Medical College.—R	114	72	42	36.8	16	107	69	38	35.5	14	7	3	4	57.1	6	71	54	17	23.9	10	
48	University of Maryland, School of Medicine.—R	114	94	20	17.5	18	103	86	17	16.5	18	11	8	3	27.3	7	64	57	7	10.9	12	
	MASSACHUSETTS																					
49	Boston University School of Medicine.—R	25	24	1	4.0	7	21	20	1	4.8	6	4	4	0	0.	3	15	14	1	6.7	2	
50	College of Physicians and Surgeons.—R	42	23	19	45.3	7	42	23	19	45.3	7						18	11	7	38.9	4	
51	Harvard Medical School.—R	120	115	5	4.2	22	102	99	3	2.9	19	18	16	2	11.1	14	53	51	2	3.8	13	
52	Tufts College Medical School.—R	98	83	15	15.3	12	92	80	12	13.0	11	6	3	3	50.0	5	62	55	7	11.3	5	
	MICHIGAN																					
53	Detroit College of Medicine.—R	46	45	1	2.2	4	45	44	1	2.2	3	1	1	0	0.	1	41	41	0	0.	2	
54	Detroit Homeopathic College.—H	7	6	1	14.3	2	7	6	1	14.3	2						7	6	1	14.3	2	
55	Univ. of Mich., Dept. of Med. and Surg.—R	105	99	6	5.7	27	78	77	1	1.3	19	27	22	5	18.5	17	54	54	0	0.	5	
56	Univ. of Mich., Homeo. College.—H	21	20	1	4.8	7	15	15	0	0.	3	6	5	1	16.7	4	13	13	0	0.	2	
	MINNESOTA																					
57	Univ. of Minn., College of Med. and Surg.—R	41	38	3	7.3	8	31	31	0	0.	6	10	7	3	30.0	4	16	16	0	0.	1	
58	Hamline University, Medical Dept.—R	19	15	4	21.1	3	16	12	4	25.0	3	3	3	0	0.	1	5	5	0	0.	1	
	MISSISSIPPI																					
59	Mississippi Medical College.—R	27	9	18	66.7	2	27	9	18	66.7	2						17	6	11	64.7	2	
	MISSOURI																					
60	American Medical College.—E	18	13	5	27.8	5	13	10	3	23.1	3	5	3	2	40.0	4	10	8	2	20.0	2	
61	Barnes Medical College.—R	83	55	28	33.7	17	73	46	27	37.0	13	10	9	1	10.0	9	51	39	12	23.5	7	
62	Eclectic Medical University, Kansas City.—E	19	13	6	31.6	4	18	12	6	33.3	4	1	1	0	0.	1	13	9	4	30.8	2	
63	Ensworth Medical College.—R	29	17	12	41.4	10	26	15	11	42.3	9	3	2	1	33.3	3	15	10	5	33.3	3	
64	Kansas City Hahnemann Medical College.—H	20	14	6	30.0	6	19	14	5	26.3	6	1	0	1	100.0	1	13	11	2	15.4	5	
65	St. Louis University, School of Medicine.—R	88	77	11	12.5	14	80	73	7	8.7	13	8	4	4	50.0	6	64	61	3	4.7	6	
66	St. Louis College of Phys. and Surgs.—R	52	25	27	51.9	18	45	24	21	46.7	14	7	1	6	85.7	7	19	9	10	52.6	7	
67	University Medical College, Kansas City.—R	48	38	10	20.8	9	42	33	9	21.4	7	6	5	1	16.7	5	35	28	7	20.0	6	
68	Washington University, Medical Dept.—R	56	52	4	7.1	9	51	49	2	3.9	6	5	3	2	40.0	4	45	43	2	4.4	5	

R—Regular; H—Homeopathic; E—Eclectic; Ph.M—Physiomedical; P—Panpathic.

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Marginal Number	NAME OF COLLEGE	Graduates of All Years. Number Examined	Number Passed	Number Failed	Per Cent. Failed	Number of States	Graduates of 1907-1911. Number Examined	Number Passed	Number Failed	Per Cent. Failed	Number of States	Graduates of 1906 and Previous. Number Examined	Number Passed	Number Failed	Per Cent. Failed	Number of States	Graduates of 1911. Number Examined	Number Passed	Number Failed	Per Cent. Failed	Number of States	Marginal Number
	NEBRASKA																					
69	John A. Creighton Medical College.—R.	61	53	8	13.1	14	58	50	8	13.8	12	3	3	0	0.	3	42	38	4	9.5	8	69
70	Lincoln Medical College.—E.	12	8	4	33.3	2	12	8	4	33.3	2						11	7	4	36.3	2	70
71	University of Nebraska, College of Med.—R.	10	10	0	0.	2	10	10	0	0.	2						10	10	0	0.	2	71
	NEW HAMPSHIRE																					
72	Dartmouth Medical School.—R.	17	16	1	5.9	6	12	12	0	0.	5	5	4	1	20.0	5	4	4	0	0.	2	72
	NEW YORK																					
73	Albany Medical College.—R.	65	48	17	26.2	9	60	43	17	28.3	6	5	5	0	0.	5	39	28	11	28.2	3	73
74	Columbia Univ., Coll. of Phys. and Surgs.—R.	114	100	14	12.2	19	89	80	9	10.1	14	25	20	5	20.0	12	50	44	6	12.0	3	74
75	Cornell University Medical College.—R.	57	55	2	3.5	7	52	51	2	3.8	6	4	4	0	0.	4	37	35	2	5.4	3	75
76	Eclectic Med. Coll. of City of New York.—E.	20	15	5	25.0	2	20	15	5	25.0	2						12	10	2	16.7	3	76
77	Fordham University, School of Medicine.—R.	15	10	5	33.3	2	15	10	5	33.3	2						13	8	5	38.4	2	77
78	Long Island College Hospital.—R.	127	101	26	20.5	11	121	95	26	21.5	7	6	6	0	0.	6	61	43	18	29.5	4	78
79	New York Homeo. Med. Coll. and Hospital.—H.	30	24	6	20.0	7	29	23	6	20.7	6	1	1	0	0.	1	14	10	4	28.6	3	79
80	New York Med. Coll. and Hosp. for Women.—H.	7	5	2	28.6	2	6	4	2	33.3	1	1	1	0	0.	1	3	2	1	33.3	1	80
81	Syracuse University, College of Medicine.—R.	33	27	6	18.2	4	30	24	6	20.0	3	3	3	0	0.	2	21	19	2	9.5	1	81
82	University and Bellevue Hospital Med. Coll.—R.	87	80	7	8.0	9	83	77	6	7.2	8	4	3	1	25.0	3	49	46	3	6.1	4	82
83	University of Buffalo, Medical Dept.—R.	58	50	8	13.8	5	54	47	7	13.0	5	4	3	1	25.0	4	37	32	5	13.5	3	83
	NORTH CAROLINA																					
84	Leonard School of Medicine.—R.	51	23	28	54.9	11	48	22	26	54.2	10	3	1	2	66.7	3	34	15	19	55.7	7	84
85	North Carolina Medical College.	26	24	2	7.7	3	25	22	2	8.0	3	1	1	0	0.	1	23	21	2	8.7	2	85
	OHIO																					
86	Cleveland College of Phys. and Surgs.—R.	26	25	1	3.8	3	25	25	0	0.	3	1	0	1	100.0	1	23	23	0	0.	3	86
87	Cleveland-Pulte Medical College.—H.	26	20	6	23.1	8	19	17	2	10.5	4	7	3	4	57.1	5	16	15	1	6.3	4	87
88	Eclectic Medical College.—E.	38	30	8	21.1	11	35	27	8	22.9	9	3	3	0	0.	3	27	22	5	18.5	8	88
89	Ohio-Miami Medical College.—R.	46	43	3	6.5	7	46	43	3	6.5	7						40	38	2	5.0	5	89
90	Starling-Ohio Medical College.—R.	56	54	2	3.6	5	50	54	2	3.6	5						55	53	2	3.6	4	90
91	Toledo Medical College.—R.	8	8	0	0.	1	8	8	0	0.	1						8	8	0	0.	1	91
92	Western Reserve University, Medical Dept.—R.	26	25	1	3.8	10	20	19	1	5.0	6	6	6	0	0.	4	14	14	0	0.	2	92
	OREGON																					
93	Willamette University, Medical Dept.—R.	3	1	2	66.7	2	3	1	2	66.7	2						1	1	0	0.	1	93
94	University of Oregon, Medical Dept.—R.	21	15	6	28.6	4	20	15	5	25.0	3	1	0	1	100.0	1	12	10	2	16.7	3	94
	PENNSYLVANIA																					
95	Hahnemann Medical College and Hospital.—H.	60	50	10	16.7	12	55	47	8	14.5	11	3	3	2	40.0	2	38	36	2	5.3	6	95
96	Jefferson Medical College.—R.	168	161	7	4.2	33	153	147	6	3.9	31	15	14	1	6.7	13	104	103	1	1.0	14	96
97	Medico-Chirurgical College of Philadelphia.—R.	107	104	3	2.8	14	94	92	2	2.1	8	13	12	1	7.7	9	78	78	0	0.	6	97
98	Temple University, Medical Dept.—R.	30	29	1	3.3	5	30	29	1	3.3	5						27	27	0	0.	3	98
99	University of Pennsylvania, Dept. of Med.—R.	200	187	12	5.7	29	179	171	8	4.5	25	30	26	4	13.3	13	124	119	5	4.0	14	99
100	University of Pittsburgh, School of Med.—R.	72	70	2	2.8	7	72	70	2	2.8	7						59	58	1	1.7	4	100
101	Woman's Med. Coll. of Pennsylvania.—R.	54	50	4	7.4	12	52	48	4	7.7	12	2	2	0	0.	2	37	35	2	5.4	9	101
	SOUTH CAROLINA																					
102	Med. Coll. of the State of South Carolina.—R.	68	54	14	20.6	5	65	51	14	21.5	3	3	3	0	±0.	3	47	39	8	17.0	3	102
	TENNESSEE																					
103	College of Physicians and Surgeons, Memphis.—R.	11	8	3	27.3	5	11	8	3	27.3	5						10	8	2	20.0	4	103
104	Memphis Hospital Medical College.—R.	115	72	43	37.4	12	98	60	38	38.8	10	12	7	5	29.4	8	64	40	24	37.5	8	104
105	Meharry Medical College.—R.	110	57	53	48.2	18	106	56	50	47.2	17	4	1	3	75.0	4	60	34	26	43.3	15	105
106	Lincoln Memorial University, Medical Dept.—R.	35	18	17	48.6	14	25	14	11	44.0	9	10	4	6	60.0	7	19	12	7	36.8	6	106
107	University of Tennessee, Medical Dept.—R.	69	54	15	26.1	22	57	44	13	22.8	17	12	7	5	41.7	9	39	34	5	12.8	13	107
108	University of West Tennessee, Medical Dept.—R.	14	1	13	92.8	7	14	1	13	92.8	7						6	2	4	66.7	4	108
109	Vanderbilt University, Medical Dept.—R.	36	32	4	11.1	13	33	29	4	12.1	17	3	3	0	0.	3	24	20	4	16.7	10	109
	TEXAS																					
110	Baylor University, College of Medicine.—R.	14	14	0	0.	3	13	13	0	0.	2	1	1	0	0.	1	12	12	0	0.	2	110
111	Fort Worth University, Medical Dept.—R.	24	23	1	4.2	3	24	23	1	4.2	3						22	22	0	0.	3	111
112	Southwestern University Medical College.—R.	15	15	0	0.	1	15	15	0	0.	1						14	14	0	0.	1	112
113	University of Texas, Dept. of Med.—R.	54	54	0	0.	6	54	54	0	0.	6						48	48	0	0.	4	113
	VERMONT																					
114	University of Vermont, College of Med.—R.	71	66	5	7.0	10	61	59	2	3.3	7	10	7	3	30.0	6	31	30	1	3.2	5	114
	VIRGINIA																					
115	Medical College of Virginia.—R.	45	41	4	8.9	6	44	41	3	6.8	6	1	0	1	100.0	1	37	37	0	0.	5	115
116	University of Virginia, Dept. of Med.—R.	32	30	2	6.2	17	23	21	2	8.7	11	9	9	0	0.	7	9	9	0	0.	3	116
117	University College of Medicine.—R.	51	45	6	11.8	8	46	40	6	13.0	6	5	5	0	0.	5	29	25	4	10.3	3	117
	WISCONSIN																					
118	Marquette University, Medical Dept.—R.	65	59	6	9.2	9	62	57	5	8.1	9	3	2	1	33.3	2	44	42	2	4.5	3	118
119	Wisconsin College of Physicians and Surgs.—R.	18	18	0	0.	1	17	17	0	0.	1	1	1	0	0.	1	16	16	0	0.	1	119
	CANADIAN																					
120	Laval University, Medical Dept.	16	6	10	62.5	7	12	4	8	66.7	6	4	2	2	50.0	3	6	1	5	83.3	3	120
121	Manitoba Medical College.	1	1	0	0.	1					1	1	1	0	0.	1						121
122	McGill University, Medical Faculty.	25	23	2	8.0	16	20	18	2	10.0	12	5	5	0	0.	5	1	1	0	0.	1	122
123	Queen's University, Medical Faculty.	15	11	4	26.7	8	12	9	3	25.0	7	3	2	1	33.3	3	1	1	0	0.	1	123
124	University of Toronto, Faculty of Medicine.	32	29	3	9.4	14	29	23	1	3.4	14	3	1	2	66.7	2	2	2	0	0.	2	124
125	Western University, Medical Dept.	7	6	1	14.3	7	4	4	0	0.	4	3	2	1	33.3	3						125
126	Foreign Colleges.	116	71	45	38.8	21	30	19	11	36.7	10	86	52	34	39.5	19	2	2	0	0.	2	126
127	Miscellaneous Medical Colleges.	356	210	146	41.0	45	110	60	50	45.5	31	246	150	96	39.0	42	16	13	3	18.7	2	127
128	Undergraduates.	330	203	127	38.5	6																128
	Totals	6900	5578	1382	19.9		5685	4708	977	17.2		945	667	278	29.4		3860	3370	490	12.7		

(CONTINUED FROM PAGE 1583)

shows that 3,860 or 55.5 per cent. of all candidates examined during the year graduated in 1911, including twelve who graduated in Canada and other foreign colleges. Educational statistics show that the medical colleges of the United States graduated 4,273 students last year; therefore, 90.1 per cent. of all graduates in 1911 took examinations for license during that year. In some of the states graduates in medicine are allowed to serve hospital internships without first becoming licensed practitioners, which doubtless accounts for some of the remaining 10 per cent. Of those examined 490, or 12.7 per cent., failed.

Table C permits of an interesting study of medical schools from the standpoint of state board examinations. For some colleges a marked improvement in teaching methods is apparent from the fact that while the percentages of failures are high for old practitioners they are lower for recent graduates and still lower for graduates of 1911. Other colleges, however, show no improvement either for recent graduates, or for graduates of 1911. In the latter instance a knowledge of these colleges, based on a careful study, which included

TABLE D.—COLLEGES GROUPED BY STATES
Showing the Number Examined and Percentage of Failures

All Colleges of	Graduates. Of All Years. Number Examined.	Of All Years. Per Cent. Failed.	Of 1907 to 1911. Number Examined.	Of 1907 to 1911. Per Cent. Failed.	Of 1906 & Prev. Number Examined.	Of 1906 & Prev. Per Cent. Failed.	Of 1911. Number Examined.	Of 1911. Per Cent. Failed.	State Rank According to the Number Examined.	Rank According to Successful at Examinations
Alabama	104	24.0	100	23.0	4	50.0	65	16.9	15	26
Arkansas	70	24.3	68	23.5	2	0.	55	20.0	22	27
California	80	12.8	79	8.9	7	57.1	55	3.6	17	15
Colorado	28	7.1	26	7.7	2	0.	22	0.	30	6
Connecticut	47	8.5	44	9.1	3	0.	15	6.7	27	8
District of Columbia	109	14.6	95	13.7	5	20.0	39	15.4	16	17
Georgia	189	16.4	183	16.9	6	0.	158	13.9	10	21
Illinois	786	20.2	665	20.0	121	21.5	473	15.8	1	24
Indiana	59	8.5	58	6.9	1	100.0	53	1.9	26	9
Iowa	64	10.9	56	3.8	12	41.7	39	0.	24	13
Kansas	36	13.9	32	9.4	4	50.0	32	9.4	28	16
Kentucky	248	26.6	235	26.4	13	30.8	183	19.7	8	29
Louisiana	133	9.0	122	8.2	11	18.2	100	4.0	12	10
Maine	29	17.2	23	17.4	6	16.7	20	20.0	29	22
Maryland	532	18.8	483	17.8	49	28.6	298	11.4	4	23
Massachusetts	285	14.0	257	13.6	28	17.9	148	11.5	7	18
Michigan	179	5.0	145	2.1	34	17.6	115	0.9	11	2
Minnesota	60	11.7	47	8.5	13	23.1	21	0.	25	14
Mississippi	27	66.7	27	66.7			17	64.7	31	33
Missouri	413	26.4	367	24.8	46	39.1	265	17.7	5	28
Nebraska	83	14.5	80	15.0	3	0.	63	12.7	19	19
New Hampshire	17	5.9	12	0.	5	20.0	4	0.	33	4
New York	613	15.9	560	10.9	53	13.2	336	17.6	2	20
North Carolina	77	39.0	73	38.4	4	50.0	57	36.8	20	32
Ohio	226	9.3	209	7.7	17	29.4	183	5.5	9	11
Oregon	24	33.3	23	30.4	1	100.0	13	15.4	32	31
Pennsylvania	700	5.6	625	4.9	65	12.2	402	3.4	3	3
South Carolina	66	20.6	65	21.5	1	0.	47	17.0	23	25
Tennessee	390	30.9	344	38.4	46	41.2	222	32.4	6	30
Texas	107	1.9	106	0.9	1	0.	98	0.	14	1
Vermont	71	7.0	61	3.3	10	30.0	31	3.2	21	5
Virginia	128	9.4	113	9.7	15	6.7	85	4.7	13	12
Wisconsin	83	7.2	79	6.3	4	25.0	60	3.3	18	7
Totals Examined in 1911	6092	17.2	5408	16.5	594	22.9	3832	12.6		

This table gives data relating to the group of colleges in each state. For example, it shows that of all the medical schools in New York 613 graduates of various years were examined by state boards during 1911, of which number 15.9 per cent. failed. Of the 560 who graduated in recent years, however (1907 to 1911 inclusive), 10.9 per cent. failed, while of the 53 who graduated previous to 1907, 13.2 per cent. failed.

The ninth column gives the rank of each state group of colleges according to the number of applicants. The Illinois group of colleges leads, having 786 graduates examined by state boards during 1911, followed by Pennsylvania with 700, New York with 613, Maryland with 532, Missouri with 413 and Tennessee with 390.

The tenth column gives the rank of each state group of colleges according to the success of the graduates at state board examinations. It is interesting to compare the figures of these two last columns. While the Illinois group ranks first according to the number examined it ranks twenty-fourth in the success of its graduates at examinations. While New York ranks third as to the number examined, it ranks twentieth in the success of its graduates at examinations and while Tennessee ranks sixth as to the number examined, it ranks thirtieth in the success of its graduates at examinations.

TOTAL RESULTS
Comparison with Previous Years

Year.	Table A. Total Examined.	Table A. Examined—Passed.	Table A. Examined—Failed.	Table A. Percentage Failed.	B. Recent Grads. Examined.	B. Percentage Failed.	C. Older Pract. Examined.	C. Percentage Failed.	A. Non-Grads. Examined.	A. Percentage Failed.	K. Reject. Without Written Examination	Total Registered.
1904	7035	5672	1363	19.3	4773	14.1	579	29.7	515	52.6	999	6871
1905	7170	5680	1490	20.8	6054	16.7	690	37.7	472	61.8	250	6976
1906	8035	6368	1667	20.7	6250	16.4	786	37.1	703	51.3	1497	7905
1907	7371	5723	1548	21.3	5922	15.1	675	37.7	674	49.6	1426	7149
1908	7770	6084	1686	21.7	6477	17.8	796	31.5	494	36.8	1276	7360
1909	7287	5857	1430	19.6	5891	15.4	908	30.0	438	34.1	1373	7220
1910	7004	5712	1292	18.4	5678	14.9	973	29.1	353	45.6	1040	7237
1911	6060	5578	1382	19.9	5685	17.2	945	29.4	320	38.5	1246	6824

RESULTS FOR LARGER COLLEGES
Comparison with Previous Years (Table E).

Year.	Colleges Represented.	Total Examined.	Per Cent. Failed.	Colleges, 100 or More Examined.	Total Examined.	Per Cent. Failed.	Colleges, 50 to 100 Examined.	Total Examined.	Per Cent. Failed.	Colleges, Less than 50 Examined.	Total Examined.	Per Cent. Failed.	Foreign, Misc., and non-grads. Exam'd.	Per Cent. Failed.
1904	149	6241	16.4	14	2271	11.7	28	1817	16.9	107	2153	21.0	794	43.1
1905	153	6411	18.3	14	2250	12.4	37	2543	17.7	102	1518	28.9	750	51.1
1906	151	6938	17.3	16	2504	14.5	34	2382	16.9	98	2053	21.2	1097	42.5
1907	146	6397	15.8	12	1626	12.7	36	2578	14.7	96	2003	13.6	1094	55.5
1908	137	6491	17.2	19	2566	15.6	26	1825	15.5	92	2070	20.8	1279	14.6
1909	134	6241	16.2	17	2476	16.9	27	1930	12.3	90	1945	19.2	946	42.6
1910	121	5953	15.3	17	2379	15.3	25	1791	13.7	79	1783	19.3	1051	36.5
1911	119	6092	17.2	18	2508	11.0	28	1895	17.1	73	1659	20.1	808	37.6

inspections of the colleges, bears out what the figures of this table indicate, that some of these institutions are teaching medicine no better to-day than they did ten or more years ago.

STUDY OF TOTALS AND PERCENTAGES

A study of totals and percentages as compared with previous years is of interest. The total examined and the percentage of failures, shown in Table A, are the lowest since the compiling of these statistics was begun in 1904. The total examined in 1911 shows a decrease of 1,075 below 1906, when 8,035 candidates were examined. By all methods—examination, reciprocity, under exemption, etc.—6,824 physicians were licensed during 1911, or 1,041 less than in 1906, when 7,865 physicians were licensed.

Other deductions from the larger tables have been made and are presented in Tables D to M, which are worthy of careful study.

STUDY OF COLLEGES BY STATE GROUPS

Table D is based on the first four large tables and gives the results for the group of colleges located in each state. It shows what states are furnishing the largest numbers of physicians and the failure percentages indicate what kind of training these colleges are furnishing, so far as may be judged from the failures of their graduates before state boards. By comparing the percentages of the first column with the other columns it can be seen whether there has been any reduction in failures for graduates of recent years. Of the thirty-three states having medical colleges which grant degrees, sixteen furnished 100 or more candidates examined. Of these sixteen groups of colleges, six had failure percentages of less than 10 per cent.; five had failure percentages between 10 and 20, and five had over 20 per cent. of failures. The highest failure percentage was obtained by the Mississippi group with 66.7. Of the states having 100 or more candidates examined, however, the highest failure percentage was obtained by the

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Tennessee group, which had 30.9 per cent., followed by the Kentucky group with 26.6 per cent., and the Missouri group with 26.4 per cent. of their graduates failing. Other deductions are given with the table.

STUDY OF LARGER COLLEGES

Table E is also based on the three large tables and gives the results of state board examinations as they affect the forty-six largest medical colleges. Although these colleges represent 38 per cent. of the medical colleges in the United States, they furnish 63 per cent. of all the candidates for license. This table shows that the graduation of large classes by a medical college does not prove excellence of teaching since several colleges having 100 or more examined have very high failure percentages and this holds true even for the graduates of 1911. In fact, the larger the college from the standpoint of the number of students and graduates the more serious is inferior teaching ability, indicated by a high failure percentage. In fairness to the medical student, and in the interests of the public, such schools should greatly strengthen their teaching facilities or reduce the size of their classes.

Altogether for these schools 711, or 16.1 per cent., failed, as compared with 20.1 per cent. of failures for the 1,659 candidates from the seventy-three colleges having less than fifty each examined.

Besides the graduates of the medical colleges of the United States, 898 candidates were examined, made up of ninety-six graduates of Canadian colleges, 116 foreign college graduates, 356 graduates of miscellaneous colleges and 330 non-graduates. Of these 898 candidates, 338, or 37.6 per cent., failed.

RESULTS IN HOME STATES AND ELSEWHERE

Table F is of much interest, because it shows for each college the results of examinations in the state where the college

TABLE E.—COLLEGES HAVING FIFTY OR MORE EXAMINED

TABLE SHOWS TOTAL NUMBER EXAMINED, TOTAL NUMBER PASSED, TOTAL NUMBER FAILED, PERCENTAGE OF FAILURES AND NUMBER OF STATES IN WHICH EACH COLLEGE HAD REPRESENTATIVES

College.	Graduates, All Years.					Graduates of 1907-1911.					Graduates, 1906 and Previous.					Graduates of 1911.					Marginal Number
	Total Examined.	Number Passed.	Number Failed.	Per Cent. of Failures.	No. States.	Total Examined.	Number Passed.	Number Failed.	Per Cent. of Failures.	No. States.	Total Examined.	Number Passed.	Number Failed.	Per Cent. of Failures.	No. States.	Total Examined.	Number Passed.	Number Failed.	Per Cent. of Failures.	No. States.	
University of Louisville, Medical Department	237	178	59	24.8	27	225	169	56	24.9	24	12	9	3	25.0	8	179	145	34	19.0	19	40
Northwestern University Medical School	222	203	20	9.0	30	198	181	17	8.6	19	25	22	3	12.0	11	156	143	13	8.3	13	30
University of Pennsylvania, Dept. of Medicine	209	197	12	5.7	29	179	171	8	4.5	25	30	26	4	13.3	13	124	119	5	4.0	14	99
Jefferson Medical College	188	181	7	4.2	33	153	147	6	3.9	31	15	14	1	6.7	12	104	103	1	1.0	14	96
Rush Medical College	146	135	11	7.5	24	99	95	4	4.0	17	47	40	7	14.9	18	68	64	4	5.9	12	32
College of Physicians and Surgeons, Chicago	143	114	29	20.3	22	116	93	23	19.8	17	27	21	6	22.2	13	71	60	11	15.5	8	25
Tulane University, Medical Department	127	119	8	6.3	15	119	111	8	6.7	14	8	8	0	0.	7	100	96	4	4.0	9	42
Long Island College Hospital	127	101	26	20.5	11	121	95	26	21.5	7	6	6	0	0.	6	61	43	18	29.5	4	78
Harvard Medical School	120	115	5	4.2	22	102	99	3	2.9	19	18	16	2	11.1	14	53	51	2	3.8	12	51
Johns Hopkins University, Medical Department	119	116	3	2.5	26	105	102	3	2.9	25	14	14	0	0.	9	63	61	2	3.2	14	46
Memphis Hospital Medical College	115	72	43	37.4	12	98	60	38	38.8	10	17	12	5	29.4	8	64	40	24	37.5	8	104
University of Maryland, School of Medicine	114	94	20	17.5	18	103	86	17	16.5	18	11	8	3	27.3	7	64	57	7	10.9	12	48
Maryland Medical College	114	72	42	36.8	16	107	69	38	35.5	14	7	3	4	57.1	6	71	54	17	23.9	10	47
Columbia Univ., College of Phys. and Surgs.	114	100	14	12.3	19	89	80	9	10.1	14	25	20	5	20.0	13	50	44	6	12.0	8	74
Meharry Medical College	110	57	53	48.2	18	106	56	50	47.2	17	4	1	3	75.0	4	60	34	26	43.3	15	105
Chicago College of Medicine and Surgery	110	84	26	23.6	22	109	83	26	23.9	21	1	1	0	0.	1	94	72	22	23.4	13	23
Medico-Chirurgical College of Philadelphia	107	104	3	2.8	14	94	92	2	2.1	9	13	12	1	7.7	5	78	78	0	0.	6	97
University of Michigan, Dept. of Med. and Surg.	105	99	6	5.7	27	78	77	1	1.3	19	27	22	5	18.5	17	54	54	0	0.	7	55
Tufts College Medical School	98	83	15	15.3	12	92	80	12	13.0	11	6	3	3	50.0	5	62	55	7	11.3	5	52
Baltimore Medical College	94	77	17	18.1	23	83	69	14	16.9	21	11	8	3	27.3	10	48	43	5	10.4	11	44
College of Physicians and Surgeons, Baltimore	91	73	18	19.8	18	85	71	14	16.5	17	6	2	4	66.7	4	52	49	3	5.8	10	45
St. Louis University, School of Medicine	88	77	11	12.5	14	80	73	7	8.7	13	8	4	4	50.0	6	64	61	3	4.7	9	65
Univ. and Bellevue Hospital Medical College	87	80	7	8.0	9	83	77	6	7.2	8	4	3	1	25.0	3	49	46	3	6.1	4	82
Barnes Medical College	83	55	28	33.7	17	72	46	26	36.1	12	10	9	1	10.0	9	51	39	12	23.5	7	61
Atlanta College of Physicians and Surgeons	77	67	10	13.0	11	71	61	10	14.1	9	6	6	0	0.	5	58	51	7	12.0	7	17
University of Pittsburgh, School of Medicine	72	70	2	2.8	7	72	70	2	2.8	7						56	56	1	1.7	4	100
University of Vermont, College of Medicine	71	66	5	7.0	10	61	59	2	3.3	7	10	7	3	30.0	6	31	30	1	3.2	5	114
University of Tennessee, Medical Department	69	51	18	26.1	22	57	44	13	22.8	17	12	7	5	41.7	9	39	34	5	12.8	13	107
University of Alabama, Medical Department	69	53	16	23.2	9	65	51	14	21.5	8	4	2	2	50.0	4	41	36	5	12.2	6	2
Medical College of the State of South Carolina	68	54	14	20.6	5	65	51	14	21.5	5	3	3	0	0.	3	47	39	8	17.0	3	102
Atlanta School of Medicine	68	57	11	16.2	7	68	57	11	16.2	6						62	53	7	11.3	4	18
Marquette University, Medical Department	65	59	6	9.2	9	62	57	5	8.1	9	3	2	1	33.3	2	44	42	2	4.5	3	118
Albany Medical College	65	48	17	26.2	9	60	43	17	28.3	6	5	5	0	0.	5	39	28	11	28.3	3	73
John A. Creighton Medical College	61	53	8	13.1	14	58	50	8	13.8	12	3	3	0	0.	3	42	38	4	9.5	8	69
Bennett Medical College	61	36	25	41.0	18	55	32	23	41.8	15	6	4	2	33.3	5	36	28	8	22.2	8	22
Hahnemann Med. Coll. and Hosp., Philadelphia	61	52	9	14.7	12	55	47	8	14.5	11	5	3	2	40.0	2	38	30	8	21.0	5	95
Indiana University, School of Medicine	59	54	5	8.5	5	58	54	4	6.9	4	1	0	1	100.0	1	53	52	1	1.9	1	33
University of Buffalo, Medical Department	58	50	8	13.8	5	54	47	7	13.0	5	4	3	1	25.0	4	37	32	5	13.5	3	83
Cornell University Medical College	57	55	2	3.5	7	53	51	2	3.8	6	4	4	0	0.	4	37	35	2	5.4	3	75
Washington University, Medical Dept., St. Louis	56	52	4	7.1	9	51	49	2	3.9	6	5	3	2	40.0	4	43	43	2	4.4	5	68
Starling-Ohio Medical College	56	54	2	3.6	5	56	54	2	3.6	5						55	53	2	3.6	4	90
University of Texas, Department of Medicine	54	54	0	0.	6	54	54	0	0.	6						48	48	0	0.	4	113
Woman's Medical College of Pennsylvania	54	50	4	7.4	12	52	48	4	7.7	12	2	2	0	0.	2	37	35	2	5.4	9	101
St. Louis College of Physicians and Surgeons	52	25	27	51.9	18	45	24	21	46.7	14	7	1	6	85.7	7	19	9	10	52.6	7	66
University College of Medicine, Richmond	51	45	6	11.8	8	46	40	6	13.0	7	5	5	0	0.	5	39	35	4	10.3	3	117
Leonard School of Medicine	51	23	28	54.9	11	48	22	26	54.2	10	3	1	2	66.7	3	34	15	19	55.7	7	84
Totals	4408	3692	711	16.1	....	3902	3347	615	15.5	....	440	345	95	21.6	....	2780	2443	337	12.1	....	....

This table is especially interesting, since it gives data relating to the 46 larger medical colleges arranged according to the number of graduates examined. This allows of comparisons between colleges having classes of nearly equal size. This time as in 1909 and 1910 the University of Louisville Medical Department had the largest number examined, which place was held in 1908 by Jefferson Medical College and in the three previous years by the College of Physicians and Surgeons of Chicago.

Of the 18 colleges having 100 or more examined 9 have failure percentages of less than 10, while 7 stand out prominently with large failure percentages of 20.5, 20.5, 23.6, 24.8, 37.4, 36.8 and 48.2. This marked difference holds even in respect to recent graduates (of 1907 to 1911 inclusive). The highest three failure percentages are for Meharry Medical College, 48.2; Memphis Hospital Medical College, 37.4, and Maryland Medical College, 36.8.

Of the 28 colleges having between 50 and 100 graduates examined, 10 had failure percentages of less than 10; 10 had failure percentages between 10 and 20, and 8 had failure percentages above 20, the 4 colleges having the highest failure percentages being Leonard School of Medicine, 54.9; St. Louis College of Physicians and Surgeons, 51.9; Bennett Medical College, 41.0, and Barnes Medical College, 33.7.

The average percentage of failures for these larger colleges for graduates of 1906 and previous years, was 21.6; for graduates of 1907 to 1911 inclusive (recent graduates), 15.5; for graduates of 1911, 12.1, and for graduates of all years, was 16.1. Of the 6,602 graduates of the 119 colleges in the United States which were examined by state boards in 1911 these larger schools furnished 4,403 or 72.6 per cent.

TABLE F.—COMPARISON OF RESULTS IN HOME STATES AND ELSEWHERE. BASED ON TABLE B.

College.	Total Examined.	Results in Home State. Passed.	Failed.	Per Cent. Failed.	Results in Other States. Passed.	Failed.	Per Cent. Failed.
ALABAMA.....—20.6	109	61	22	26.5	18	1	5.9
Birmingham Medical College	35	20	8	28.6	6	1	14.3
University of Alabama	65	41	14	25.5	10	0	0.
ARKANSAS.....+27.9	68	36	7	15.6	13	10	43.5
College of Physicians and Surgeons	32	15	6	28.6	6	5	45.5
University of Arkansas	36	23	1	4.2	7	5	41.7
CALIFORNIA.....— 9.8	70	67	7	9.5	3	0	0.
California Eclectic Medical College							
College of P. and S., Los Angeles	12	8	2	20.0	2	0	0.
College of P. and S., San Francisco	15	12	3	20.0			
Cooper Medical College	27	25	2	7.5			
Hahnemann Med. Coll. of the Pacific	7	7	0	0.			
Oakland Coll. of Medicine and Surgery							
University of California	18	15	0	0.	3	0	0.
COLORADO.....+26.6	29	19	9	0.	5	2	28.6
University of Colorado	29	19	9	0.	5	2	28.6
CONNECTICUT.....+12.9	44	25	1	3.8	15	3	16.7
Yale Medical School	44	25	1	3.8	15	3	16.7
DISTRICT OF COLUMBIA.....— 5.9	95	10	4	16.2	64	9	12.3
George Washington University	32	11	2	15.4	19	0	0.
Georgetown University	10	4	0	0.	11	3	21.4
Howard University	45	3	2	40.0	34	6	15.0
GEORGIA.....+26.9	182	113	10	8.1	39	21	35.0
Atlanta College of Phys. and Surgs	71	45	1	2.2	16	9	36.0
Atlanta School of Medicine	26	23	4	8.5	14	7	33.3
Georgia College of Eclectic M. and S	1				1	0	0.
Hospital Medical College, Atlanta	2	0	1	100.0	0	1	100.0
Medical College of Georgia	41	25	4	13.8	8	4	33.3
ILLINOIS.....—13.6	600	330	198	24.5	196	24	10.9
Bennett Medical College	55	19	46	45.7	13	7	35.0
Chicago College of Med. and Surg	109	60	21	25.9	23	5	17.9
College of Medicine and Surg., Ph.M	14	4	10	71.4			
College of Phys. and Surgs., Chicago	116	55	20	26.7	38	3	7.3
Hahnemann Med. Coll. and Hospital	34	13	6	31.6	11	4	26.7
Hering Medical College	11	5	3	37.5	2	1	33.3
Jenner Medical College	14	7	7	50.0			
National Medical University	6	2	4	66.7			
Northwestern University Med. School	186	109	14	11.4	72	3	4.0
Relianoe Medical College	9	4	5	55.6			
Rush Medical College	99	58	3	4.9	37	1	2.6
INDIANA.....+63.1	68	53	2	3.6	1	2	66.7
Indiana University, School of Med	58	53	2	3.6		2	66.7
IOWA.....+14.3	83	60	8	11.8	12	3	14.3
Drake University, College of Medicine	15	14	0	0.	1	0	0.
State University of Iowa, Coll. of Med	32	21	0	0.	9	2	18.2
State University of Iowa, Homeo. Dept	5	3	0	0.	2	0	0.
KANSAS.....—10.7	62	35	3	10.7	6	0	0.
Kansas Medical College	13	9	3	25.0	1	0	0.
Univ. of Kansas, School of Medicine	19	16	0	0.	3	0	0.
KENTUCKY.....+ 1.9	235	74	25	25.3	99	37	27.2
Louisville National Medical College	10	2	3	60.0	7	3	60.0
University of Louisville, Medical Dept	225	72	22	23.4	97	34	26.0
LOUISIANA.....+14.0	122	72	2	2.7	40	8	16.7
Flint Medical College	3	1	2	66.7			
Tulane University Medical Department	119	71	0	0.	40	8	16.7
MAINE.....+19.0	57	51	1	1.9	5	2	27.3
Medical School of Maine	23	11	1	8.3	8	3	27.3
MARYLAND.....+ 0.4	463	118	25	17.5	279	61	17.9
Baltimore Medical College	83	15	3	16.7	54	11	16.9
College of Physicians and Surgeons	117	27	2	10.5	54	12	18.2
Johns Hopkins University	105	39	2	4.9	63	1	1.6
Maryland Medical College	107	11	12	52.2	58	26	31.0
University of Maryland	103	36	6	14.3	50	11	18.0
MASSACHUSETTS.....— 6.1	257	131	29	16.6	91	10	9.9
Boston University	21	13	1	7.2	7	0	0.
College of Physicians and Surgeons	42	7	11	61.1	16	8	33.3
Harvard Medical School	102	58	3	4.9	41	0	0.
Tufts College Medical School	92	53	10	15.9	27	2	6.9
MICHIGAN.....+ 4.8	149	100	1	0.9	33	2	5.7
Detroit College of Medicine	45	42	1	2.3	2	0	0.
Detroit Homeopathic College	7	6	0	0.	0	1	100.0
Univ. of Michigan, Dept. of M. and S	78	48	0	0.	29	1	3.3
Univ. of Michigan, Homeopathic Coll	15	13	0	0.	2	0	0.
MINNESOTA.....—12.1	47	29	4	12.1	14	0	0.
Univ. of Minnesota, Coll. of M. and S	31	19	0	0.	12	0	0.
Hamline University	16	10	4	28.6	2	0	0.
MISSISSIPPI.....—20.8	27	7	17	70.8	2	1	50.0
Mississippi Medical College	27	7	17	70.8	2	1	50.0

College.	Total Examined.	Results in Home State. Passed.	Failed.	Per Cent. Failed.	Results in Other States. Passed.	Failed.	Per Cent. Failed.
MISSOURI.....+12.5	367	137	30	18.0	120	61	33.5
American Medical College	14	8	3	27.2	2	1	50.0
Barnes Medical College	72	23	9	28.1	23	17	42.5
Eclectic Medical University, Kansas City	18	(a)	.....		12	6	33.3
Ensworth Medical College	26	2	3	60.0	13	8	38.1
Kansas City Hahnemann Medical Coll	18	4	2	33.3	10	3	23.1
St. Louis University	80	35	1	2.8	38	6	13.6
St. Louis College of Phys. and Surgs	45	13	7	35.0	11	14	56.0
University Medical College, Kansas City	42	20	4	16.7	13	5	27.8
Washington University	51	32	1	3.0	17	1	5.6
NEBRASKA.....+14.3	80	48	3	9.8	22	7	24.1
John A. Creighton Medical College	58	29	2	6.5	21	6	22.2
Lincoln Medical College	12	8	3	27.3	0	1	100.0
University of Nebraska	10	9	0	0.	1	0	0.
NEW HAMPSHIRE.....—	12	3	0	0.	9	0	0.
Dartmouth Medical School	12	3	0	0.	9	0	0.
NEW YORK.....—12.2	500	380	86	18.1	80	5	5.9
Albany Medical College	60	36	16	30.8	7	1	12.5
Columbia Univ. Coll. of P. and S	80	60	9	13.0	20	0	0.
Cornell University Medical School	52	40	2	4.8	11	0	0.
Eclectic Medical College, New York	20	12	5	29.4	3	0	0.
Fordham University	15	9	5	35.7	1	0	0.
Long Island College Hospital	121	82	25	23.4	13	1	7.2
New York Homeo. Med. Coll. and Hosp	29	18	6	25.0	5	0	0.
N. Y. Med. Coll. and Hosp. for Women	6		2	33.3			
Syracuse University	30	24	4	14.3	0	2	100.0
University and Bellevue Hosp. Med. Coll	83	63	6	8.7	14	0	0.
University of Buffalo, Medical Dept	54	41	6	12.8	6	1	14.3
NORTH CAROLINA.....+24.3	72	9	23	71.9	19	21	52.5
Leonard School of Medicine	48	4	8	66.7	18	18	50.0
North Carolina Medical College	25	22	1	4.4	1	1	50.0
OHIO.....+13.1	200	145	6	4.0	46	10	17.1
Cleveland College of Phys. and Surgs	25	22	0	0.	3	0	0.
Cleveland-Pulte Medical College	19	8	1	10.0	9	1	11.1
Eclectic Medical College	35	8	3	27.3	19	5	20.8
Ohio-Miami Medical College	46	34	1	2.9	9	2	18.2
Starling-Ohio Medical College	56	50	1	2.0	4	1	20.0
Toledo Medical College	8	8	0	0.			
Western Reserve University	20	14	0	0.	5	1	16.7
OREGON.....+23.7	23	14	5	26.3	2	2	50.0
Willamette University	3	1	1	50.0	0	1	100.0
University of Oregon	20	13	4	23.5	2	1	33.3
PENNSYLVANIA.....+ 8.3	635	374	6	1.6	230	25	9.8
Hahnemann Medical College and Hosp	55	31	1	3.1	16	7	30.4
Jefferson Medical College	158	79	0	0.	68	6	8.1
Medico-Chirurgical Coll. of Philadelphia	94	76	1	1.3	16	1	5.9
Temple University	24	20	0	0.	3	1	16.7
University of Pennsylvania	179	86	3	3.4	85	5	5.6
University of Pittsburgh	72	58	1	1.7	12	1	7.7
Woman's Med. Coll. of Pennsylvania	52	20	0	0.	28	4	12.5
SOUTH CAROLINA.....+12.3	66	48	11	19.2	6	1	14.3
Med. Coll. of the State of So. Carolina	65	46	11	19.3	5	3	37.5
TENNESSEE.....+33.4	344	81	8	10.5	101	126	48.9
College of Phys. and Surg., Memphis	11	4	0	0.	4	3	42.9
Memphis Hospital Medical College	98	12	1	7.7	48	37	43.5
Meharry Medical College	105	15	1	6.3	41	48	54.4
Lincoln Memorial University, Med. Dept	25	11	2	15.4	3	9	75.0
University of Tennessee	57	6	0	0.	38	13	25.5
University of West Tennessee	14	0	2	100.0	1	11	91.7
Vanderbilt University	34	33	0	0.	6	5	13.3
TEXAS.....— 1.9	100	95	1	1.0	10	0	0.
Baylor University	13	11	0	0.	2	0	0.
Fort Worth University	24	21	1	4.5	2	0	0.
Southwestern University Medical College	15	15	0	0.	.....	.....	.....
University of Texas	48	48	0	0.	.....	.....	.....
VERMONT.....+ 9.5	61	49	9	0.	19	2	9.5
University of Vermont	61	49	0	0.	19	2	9.5
VIRGINIA.....+14.4	113	66	2	3.2	43	9	17.6
Medical College of Virginia	44	22	0	0.	11	3	25.0
University of Virginia	22	9	1	10.0	12	1	8.3
University College of Medicine	46	19	1	5.0	21	5	19.2
WISCONSIN.....+ 5.4	79	68	4	5.7	8	1	11.1
Marquette University	62	49	4	7.5	8	1	11.1
Wisconsin Coll. of Phys. and Surgeons	17	17	0	0.	.....	.....	.....
Totals.....+ 7.9	5468	2830	436	13.3	1730	466	21.2

In this table the number of graduates examined in the state in which the college is located are grouped in one column, while graduates of that college examined in other states are in another column. For example, under Tennessee, this table shows that, of the 98 graduates of Memphis Hospital Medical College examined by State Boards during 1911, 13 were examined in Tennessee of which number 12 passed and 1, or 7.7 per cent. failed, while 85 were examined in other states of which number 48 passed and 37, or 43.5 per cent. failed. This table shows that in the majority of instances the graduates have better chances of passing examinations in the state in which their colleges are located than they have elsewhere. This should always be considered in making comparisons between colleges. A low standard college, by having all its graduates examined in the home state, may sometimes show a lower percentage of failures than a college of much higher grade which has graduates examined by several states.

The heavy-faced figures give the results by states. The first column of heavy-faced figures preceded by the + and — signs, shows the differences between the percentages of examinations in the home state and the examinations elsewhere. The plus sign indicates that graduates have better chances of success in the state where the colleges from which they graduated are located; the minus sign indicates that the chances are better elsewhere. The most marked variations in 1911 were in the examinations of the graduates of Indiana, 63.1 per cent., Tennessee, 33.4 per cent., Colorado, 26.6 per cent., Arkansas, 27.9 per cent., Georgia, 26.9 per cent., North Carolina, 24.3 per cent., and Oregon, 23.7 per cent., in all of which the chances of the graduates were better in the home state. The marked variations where the graduate's chances were better elsewhere were in Mississippi, 20.8 per cent., Alabama, 20.6 per cent., and Illinois, 13.6 per cent. The danger of forming hasty conclusions from these percentages taken alone, however, is very well shown by the heavy figures for Indiana where there is one high grade school, where only 3 graduates were examined in "other states," and where the failure of two of them was probably accidental. The same is doubtless true regarding the percentages in Colorado where very few were examined in "other states." More reliable are the percentages in Tennessee and Missouri where larger numbers from larger groups of colleges were examined in "other states." The totals show that on the average the chances of success were 7.9 per cent. better if the graduate took the examination in the state where his college was located.

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is located, as compared with the results of examinations in other states, where there is less possibility of local influence. Of all recent graduates examined in 1911, 3,272, or about 60 per cent., took their license examinations in the states where the colleges from which they graduated were located. Of this number 13.3 per cent. failed on the average, whereas, of the 1,730 candidates examined in other states, 21.2 per cent. failed. This would indicate that, as a rule, the student's chances of passing the license examination are better if he stays in the college's home state. In this connection it is interesting to note that no graduate of any of the Iowa colleges failed in the Iowa examinations, although of the graduates of these colleges who were examined in other states, 14.3 per cent. failed. In Colorado there were no failures for the Colorado college, although of the graduates of that school examined elsewhere, 28.6 per cent. failed, and in Vermont there were no failures of graduates of the Vermont college, although of the graduates of that college examined in other states 9.5 per cent. failed. The student's chances for success at home and elsewhere were equal or nearly so in four instances, these being for the colleges of Kentucky, Maryland, New Hampshire and Texas; the student's chances were better in the home state in twenty instances, while in nine instances the student's chances were better if he went to some other state.

TOTAL RESULTS FOR FIVE YEARS

Table G shows, so far as reports were obtainable, the number registered and the number rejected in each state for each of the past five years. A comparison of this table with the statistics in the last educational number of THE JOURNAL (Aug. 19, 1911, p. 656, Table 10), shows what would be expected, that the states having the largest number of medical graduates examine the largest number of physicians. Now, only one state, New Mexico, will register candidates on presentation of diploma, without examination. This table shows only those registered by examination. Another table (K) shows the total registration by all methods.

CLASSIFICATION OF COLLEGES

Tables H, I and J give a classification of the medical colleges of the United States on the basis of the failures of their graduates at state board examinations during the past year. This classification is based on the examination of *recent graduates*, as shown in Table B. In forming conclusions, the caution already given should be observed, of noting the number examined, the number of states in which representatives appeared, the character of the board making the examination and the character of the examination. To form a more exact judgment one should compare the percentage of failures received by any college this year with those received in the classifications published in previous years. Careful investigation shows that a college cannot be considered a high-grade medical school merely because its graduates occasionally show a low percentage or an absence of failures at state board examinations. The fact is, several poorly equipped and low-standard colleges appear in the first list. On the other hand, some good schools appear in the second list. For the majority of colleges, however, the classification is fairly accurate. A comparison of this classification with that based on the actual inspection of the colleges by the Council on Medical Education will be of interest (see THE JOURNAL A. M. A., June 18, 1910, p. 2062).

Table H gives a list of forty-seven colleges which obtained failure percentages below 10 per cent., fourteen of which had no failures whatsoever and seventeen others had only 5 per cent. or less. The failure percentage for the entire group was 4.7. Table I shows twenty-one colleges whose failure percentages were between 10 and 20 per cent., of which number ten had percentages below the average for the group, which was 15.3. Table J includes forty-six colleges having failure percentages of 20 per cent., or above, of which number twenty-five had above 30 per cent., seventeen had above 40 per cent. and eleven had percentages of 50 per cent., or higher. The average percentage for all candidates from this group of colleges was 32.9.

CLASSIFICATION OF COLLEGES
Comparison with Previous Years (Tables H, I, J).

	Colleges Having Less than 10 Per Cent.	Colleges Having 10 to 50 Per Cent.	Colleges Having Above 50 Per Cent.	Unclassified Colleges.	Total Colleges.
1904	47	27	38	37	149
1905	45	22	40	46	153
1906	62	24	43	20	149
1907	64	27	39	18	148
1908	48	29	46	15	138
1909	58	31	38	7	134
1910	57	22	42	0	121
1911	47	21	46	5	119

TABLE G.—PHYSICIANS EXAMINED BY STATE BOARDS, 1907 TO 1911, INCLUSIVE

State.	1907		1908		1909		1910		1911		Totals.			
	Registered.	Rejected.	Registered.	Rejected.	Registered.	Rejected.	Registered.	Rejected.	Registered.	Rejected.	Examined.	Registered.	Rejected.	Percentage Rejected.
Alabama	142	38	66	66	7	20	94	64	107	54	658	416	242	35.3
Arizona	29	2	36	4	19	6	15	9	28	9	157	127	30	19.1
Arkansas	72	106	120	85	111	131	90	28	108	30	887	507	380	42.8
California	118	84	145	96	184	73	204	47	227	56	1,237	878	359	29.0
Colorado	50	6	52	14	36	15	48	2	33	8	267	219	48	18.0
Connecticut	64	17	67	16	52	13	69	18	73	20	409	325	84	20.5
Delaware	4	2	11	0	19	2	21	3	22	0	85	77	8	9.4
Dist. of Columbia	59	37	53	36	46	21	32	13	25	6	328	211	113	34.8
Florida	72	8	79	10	70	12	102	15	87	23	478	410	68	14.2
Georgia	139	22	150	14	143	28	148	9	148	28	829	728	101	12.2
Idaho	38	7	52	16	54	23	47	24	41	13	315	232	83	26.3
Illinois	580	52	648	96	945	117	631	100	422	154	3,458	2,934	519	15.0
Indiana	172	17	172	7	102	3	97	9	114	7	709	657	43	6.1
Iowa	146	30	129	43	98	14	113	4	75	6	664	571	93	14.0
Kansas	125	14	116	18	121	20	66	25	56	25	566	484	102	17.3
Kentucky	48	19	107	61	120	18	119	35	89	36	651	482	169	26.0
Louisiana	153	7	145	29	121	32	108	34	122	36	779	646	133	17.1
Maine	74	0	92	11	55	10	73	5	86	11	471	390	41	9.7
Maryland	139	41	132	71	130	33	131	32	140	39	908	692	216	23.7
Massachusetts*	226	118	238	108	213	95	197	106	226	74	1,505	1,105	400	31.0
Michigan	150	8	113	6	140	2	131	3	127	1	681	661	20	2.9
Minnesota	80	33	76	25	90	25	76	22	58	7	494	380	114	23.1
Mississippi*	157	191	138	184	130	154	84	156	115	113	1,416	624	792	55.9
Missouri	186	86	181	50	212	70	181	29	182	39	1,206	942	267	22.1
Montana	34	14	51	27	66	23	73	24	44	19	377	270	107	28.4
Nebraska	68	14	103	16	74	8	90	0	67	11	441	392	49	11.1
Nevada	10	1	17	0	9	0	12	1	8	1	59	56	3	5.1
New Hampshire	19	11	37	16	20	10	34	8	18	5	178	128	50	28.1
New Jersey	73	15	89	17	76	12	83	17	107	15	484	408	76	15.7
New Mexico	5	3	20	2	11	4	6	1	21	2	65	54	11	16.9
New York	891	54	879	73	866	72	515	72	536	164	3,422	2,987	435	12.7
North Carolina	111	20	95	26	111	18	79	15	92	30	597	488	109	18.3
North Dakota	49	4	52	10	41	6	42	5	25	1	235	209	26	11.1
Ohio	179	9	182	6	192	13	172	10	170	8	941	880	46	4.9
Oklahoma	3	34	16	92	44	100	42	123	29	89	579	349	130	27.9
Oregon*	62	56	43	63	95	50	93	55	94	50	661	387	274	41.5
Pennsylvania	465	54	485	49	474	27	451	62	515	27	2,566	2,390	209	8.0
Rhode Island	36	23	29	17	23	10	23	10	32	5	208	143	65	31.3
South Carolina	41	17	47	21	46	23	61	44	94	27	331	230	101	30.9
South Dakota	23	5	58	6	60	21	55	9	53	5	295	246	46	15.8
Tennessee*	133	140	213	87	277	4	315	52	213	42	1,476	1,151	322	22.0
Texas	187	64	143	23	181	19	162	5	151	19	954	824	130	13.6
Utah	26	0	27	5	28	4	34	4	22	2	152	137	16	10.5
Vermont	40	0	45	0	28	2	21	0	21	0	157	156	1	0.6
Virginia	124	33	128	53	136	40	122	14	115	43	806	625	183	22.6
Washington	163	38	182	60	148	49	154	48	102	43	987	749	238	23.7
West Virginia	92	9	102	18	105	10	80	23	88	22	559	475	84	15.0
Wisconsin	62	5	80	7	56	13	71	7	107	7	413	376	37	9.4
Wyoming	7	3	7	2	12	0	10	0	8	0	51	44	7	13.7
Totals	7,271		7,770		7,297		7,094		6,960		36,292			
Registered	5,723		6,084		5,857		5,712		5,578		28,954			
Rejected	1,548		1,686		1,430		1,382		1,382		7,338			
Per Cent. Re	21.3		21.7		19.6		18.4		19.9		20.2			

This table gives the number of candidates registered by examination by each state during each of the last five years, as well as the number rejected. The last four columns give the totals for the five years and the percentage rejected by each state.

Eight states registered over 1,000 candidates by examination, these being California, Illinois, Massachusetts, Mississippi, Missouri, New York, Pennsylvania and Tennessee. Over 5,000 were registered in Illinois and New York. Of the 1,151 candidates registered in Tennessee in the last five years, 294 or 34.2 per cent., were non-graduates.

The highest percentage of rejections was 55.9 in Mississippi, followed by Arkansas, Oregon and Alabama, with 42.8, 41.5 and 35.3, respectively. The states marked with an asterisk (*) included non-graduates among those examined, and for that reason would be expected to have higher percentages rejected. On the other hand, in several states the boards eliminate many candidates prior to the examination by a careful scrutiny of credentials and as a result lower percentages of failures result at the examinations.

The lowest failure percentages were in Michigan, 2.9; Ohio, 4.9; Nevada, 5.1; and Indiana, 6.1.

A comparison of the classification this year with those of previous years shows an increase in the number of colleges having above 20 per cent. of failures and a marked decrease in those having less than 10 per cent. of failures. It will be interesting to note the changes in these totals hereafter, as state boards more generally adopt the use of practical examinations.

TABLE H.—COLLEGES HAVING LESS THAN 10 PER CENT. OF FAILURES BEFORE STATE BOARDS IN 1911. BASED ON TABLE B.

College.	Total Examined.	Number Passed.	Number Failed.	Per Cent. Failed.	No. of States.
CALIFORNIA					
Cooper Medical College	27	25	2	7.5	1
Hahnemann Medical College of the Pacific	7	7	0	0.	1
University of California, Medical Dept.	18	18	0	0.	4
COLORADO					
University of Colorado, Medical Dept.	26	24	2	7.7	5
CONNECTICUT					
Yale Medical School	44	40	4	9.1	8
DISTRICT OF COLUMBIA					
George Washington University	32	30	2	6.2	13
ILLINOIS					
Northwestern University Medical School	198	181	17	8.6	19
Rush Medical College	99	95	4	4.0	17
INDIANA					
Indiana University, School of Medicine	58	54	4	6.9	4
IOWA					
Drake University, College of Medicine	15	15	0	0.	2
State University of Iowa, College of Med.	32	30	2	6.2	8
State University of Iowa, Homeo. Dept.	5	5	0	0.	3
KANSAS					
University of Kansas, School of Medicine	19	19	0	0.	2
LOUISIANA					
Tulane University, Medical Dept.	119	111	8	6.7	14
MARYLAND					
Johns Hopkins University, Medical Dept.	105	102	3	2.9	25
MASSACHUSETTS					
Boston University School of Medicine	21	20	1	4.8	6
Harvard Medical School	102	99	3	2.9	19
MICHIGAN					
Detroit College of Medicine	45	44	1	2.2	3
Univ. of Mich., Dept. of Med. and Surg.	78	77	1	1.3	19
University of Michigan, Homeo. College	15	15	0	0.	3
MINNESOTA					
Univ. of Minn., College of Med. and Surg.	31	31	0	0.	6
MISSOURI					
St. Louis University, School of Medicine	80	73	7	8.7	12
Washington University, Medical Dept.	51	49	2	3.9	6
NEBRASKA					
University of Nebraska, College of Med.	10	10	0	0.	2
NEW HAMPSHIRE					
Dartmouth Medical School	12	12	0	0.	5
NEW YORK					
Cornell University Medical College	53	51	2	3.8	6
Univ. and Bellevue Hosp. Medical College	83	77	6	7.2	8
NORTH CAROLINA					
North Carolina Medical College	25	23	2	8.0	3
OHIO					
Ohio-Miami Medical College	46	43	3	6.5	7
Starling-Ohio Medical College	56	54	2	3.6	5
Toledo Medical College	8	8	0	0.	1
Western Reserve University, Medical Dept.	20	19	1	5.0	6
PENNSYLVANIA					
Jefferson Medical College	153	147	6	3.9	31
Medico-Chirurgical College of Philadelphia	94	92	2	2.1	8
Temple University, Medical Dept.	30	29	1	3.3	5
University of Pennsylvania, Dept. of Med.	179	171	8	4.5	25
Univ. of Pittsburgh, School of Medicine	72	70	2	2.8	7
Woman's Medical College of Pennsylvania	52	48	4	7.7	12
TEXAS					
Baylor University, College of Medicine	13	13	0	0.	2
Fort Worth University, Medical Dept.	24	23	1	4.2	3
Southwestern University Medical College	15	15	0	0.	1
University of Texas, Dept. of Medicine	54	54	0	0.	6
VERMONT					
University of Vermont, College of Medicine	61	59	2	3.3	7
VIRGINIA					
Medical College of Virginia	44	41	3	6.8	6
University of Virginia, Dept. of Medicine	23	21	2	8.7	11
WISCONSIN					
Marquette University, Medical Dept.	62	57	5	8.1	9
Wisconsin College of Phys. and Surgs.	17	17	0	0.	1
Totals	2433	2318	115	4.7	..

TOTAL REGISTRATION IN 1911

The tables thus far described have referred only to the results of examinations and to those registered on that basis. Table K, however, shows the total number who received licenses in each state including those registered by examination, by reciprocity, and under various exemption clauses. Above 100 were registered in thirty different states, above 200 in nine and above 400 in three, the largest numbers being registered in New York with 611, in Pennsylvania with 515 and in Illinois with 472. There were 203 non-graduates registered in five states, 110 having been registered in Tennessee, seventy-four in Mississippi, eleven in Massachusetts, seven in Oregon and one in Georgia. Altogether 6,824 physicians were licensed during 1911 as compared with 7,352 in 1910, and 7,865 in 1906.

Table L gives those registered without examination on presentation of satisfactory credentials, which included a license issued by some other state. This is usually described by the term "reciprocity," which conveys the idea that the state which accepts the license of another must be granted the same courtesy by the state issuing the original license. The term does not well describe this method of registration, however, since some state boards consider it more fair to the physician to accept his credentials, if satisfactory, whether the state board issuing the original license returns the favor or not. Had not reciprocal relations been established by the thirty-four states shown in the table, 1,128 physicians, the majority of whom have been in practice for many years, would have been compelled to undergo the ordeal of a second trying examination.

TABLE I.—COLLEGES HAVING BETWEEN 10 AND 20 PER CENT. OF FAILURES BEFORE STATE BOARDS IN 1911. BASED ON TABLE B.

College.	Total Examined.	Number Passed.	Number Failed.	Per Cent. Failed.	No. of States.
ARKANSAS					
University of Arkansas, Medical Dept.	36	30	6	16.7	6
CALIFORNIA					
College of Phys. and Surgs., Los Angeles	12	10	2	16.7	2
DISTRICT OF COLUMBIA					
Georgetown University, School of Med.	18	15	3	16.7	9
Howard University, Medical Dept.	45	37	8	17.8	20
GEORGIA					
Atlanta College of Physicians and Surgs.	71	61	10	14.1	9
Atlanta School of Medicine	68	57	11	16.2	7
Medical College of Georgia	41	33	8	19.5	5
ILLINOIS					
College of Physicians and Surgeons	116	93	23	19.8	17
MAINE					
Medical School of Maine	23	19	4	17.4	7
MARYLAND					
Baltimore Medical College	83	69	14	16.9	21
College of Physicians and Surgeons	85	71	14	16.5	17
University of Maryland, School of Med.	103	86	17	16.5	18
MASSACHUSETTS					
Tufts College Medical School	92	80	12	13.0	11
MICHIGAN					
Detroit Homeopathic College	7	6	1	14.3	2
NEBRASKA					
John A. Creighton Medical College	58	50	8	13.8	12
NEW YORK					
Columbia Univ., Coll. of Phys. and Surgs.	89	80	9	10.1	14
University of Buffalo, Medical Dept.	54	47	7	13.0	5
OHIO					
Cleveland-Pulte Medical College	19	17	2	10.5	4
PENNSYLVANIA					
Hahnemann Medical College and Hospital	55	47	8	14.5	11
TENNESSEE					
Vanderbilt University, Medical Dept.	33	29	4	12.1	12
VIRGINIA					
University College of Medicine	46	40	6	13.0	6
Totals	1154	977	177	15.3	..

RECIPROCITY AND EDUCATIONAL STANDARDS

As at present administered, reciprocal relations between some states are tending to lower rather than to elevate educational standards. A study of these statistics will show that in several instances such relations exist between states differing widely in their standards of education and in the methods and severity of their examinations. It can be seen, therefore, that a loosely administered provision for reciprocity provides a wide-open door through which unqualified candidates can obtain registration. There are some boards, however, which wisely reserve and exercise the right to reject any candidate who does not possess satisfactory credentials even though he is licensed in a state with which it has reciprocal relations. Some boards also prudently require that the applicant, before he is eligible to registration through reci-

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procity, must have been engaged in the actual and reputable practice of his profession for at least a year in the state where the original license was granted. Without this provision a candidate may be tempted to obtain his original license in the state giving the easiest examination and, on the other hand, a state board may be tempted to make its examination less severe for the sake of obtaining additional fees.

Hence, without the one-year-residence clause, standards of examination are apt to be lowered. In the establishing of reciprocal relations, therefore, the state board should reserve and exercise the discretionary power to refuse to register any candidate who could not originally have registered in that state and secondly, the board should require that the applicant shall have been in the actual practice of medicine for at least a year before he is eligible to registration under the reciprocity provision.

In the light of the above statement in regard to reciprocity, it will be interesting to study Table M, which shows in what states the original licenses were granted of those who were registered elsewhere under the reciprocity provision during the last five years.

Note that of the 5,877 physicians licensed through reciprocity during the last five years the *original* licenses of 1,307 were obtained in Illinois, more than twice as many as came from any other one state. In New York 504 physicians took their original license examinations, 444 in Iowa, and 348 in Missouri.

In Conclusion

In the publication of these statistics, the endeavor has been to give an absolutely fair presentation of facts, a knowledge of which is always beneficial. Without question this annual presentation of the results of state licensing examinations has had a most helpful influence on medical education and medical licensure in this country. We reiterate our acknowledgments to the state licensing boards, whose ready cooperation and complete reports have made the publication of these data possible.

TABLE J.—Colleges Having Over 20 Per Cent. of Failures Before State Boards in 1911. Based on Table B.

College.	Total Examined.	Number Passed.	Number Failed.	Per Cent. Failed.	No. of States.
ALABAMA					
Birmingham Medical College	35	26	9	25.7	5
University of Alabama, Medical Dept.	65	51	14	21.5	8
CALIFORNIA					
College of Phys. and Surgs., San Francisco	15	12	3	20.0	1
GEORGIA					
Hospital Medical College, Atlanta	2	0	2	100.0	2
ILLINOIS					
Bennett Medical College	55	32	23	41.8	15
Chicago College of Medicine and Surgery	109	83	26	23.9	21
College of Medicine and Surgery, Ph.M.	14	4	10	71.4	1
Hahnemann Medical College and Hospital	34	24	10	29.4	12
Hering Medical College	11	7	4	36.3	4
Jenner Medical College	14	7	7	50.0	1
National Medical University	6	2	4	66.7	1
Reliance Medical College	9	4	5	55.6	1
KANSAS					
Kansas Medical College	13	10	3	23.1	2
KENTUCKY					
Louisville National Medical College	10	4	6	60.0	6
University of Louisville, Medical Dept.	225	169	56	24.9	24
LOUISIANA					
Flint Medical College	3	1	2	66.7	1
MARYLAND					
Maryland Medical College	107	69	38	35.5	14
MASSACHUSETTS					
College of Physicians and Surgeons	42	23	19	45.3	7
MINNESOTA					
Hamline University, Medical Dept.	16	12	4	25.0	3
MISSISSIPPI					
Mississippi Medical College	27	9	18	66.7	2
MISSOURI					
American Medical College	14	10	4	28.6	4
Barnes Medical College	72	46	26	36.1	11
Eclectic Medical University, Kansas City	18	12	6	33.3	4
Ensworth Medical College	26	15	11	42.3	9
Kansas City Hahnemann Medical College	19	14	5	26.3	6
St. Louis College of Physicians and Surgs.	45	24	21	46.7	14
University Medical College, Kansas City	42	33	9	21.4	7
NEBRASKA					
Lincoln Medical College	12	8	4	33.3	2
NEW YORK					
Albany Medical College	60	43	17	28.3	6
Eclectic Med. Coll., of City of New York	20	15	5	25.0	3
Fordham University, School of Medicine	15	10	5	33.3	2
Long Island College Hospital	121	95	26	21.5	7
New York Homeo. Med. Coll. and Hospital	29	23	6	20.7	6
N. Y. Med. Coll. and Hosp. for Women	6	4	2	33.3	1
Syracuse University, College of Medicine	30	24	6	20.0	3
NORTH CAROLINA					
Leonard School of Medicine	48	22	26	54.2	10
OHIO					
Eclectic Medical College	35	27	8	22.9	9
OREGON					
Willamette University, Medical Dept.	3	1	2	66.7	2
University of Oregon, Medical Dept.	20	15	5	25.0	3
SOUTH CAROLINA					
Med. Coll. of the State of South Carolina	65	51	14	21.5	3
TENNESSEE					
College of Physicians and Surgs., Memphis	11	8	3	27.3	5
Memphis Hospital Medical College	98	60	38	38.8	10
Meharry Medical College	106	56	50	47.2	17
Lincoln Memorial University, Medical Dept.	25	14	11	44.6	9
University of Tennessee, Medical Dept.	57	44	13	22.8	17
University of West Tennessee, Medical Dept.	14	1	13	92.8	7
Totals	1823	1224	599	32.9	.....

TABLE K.—Registration by State Boards During the Year 1911.

States.	By Examination.			By Reciprocity.	Without Written Exam. or Under Exemption.	Total Registered.
	Graduates, 1907-1911.	Graduates, Licensed Previous	Non-graduates.			
Alabama	104	3	....	....	....	107
Arizona	16	12	....	....	....	28
Arkansas	89	19	....	25	....	133
California	136	91	....	....	6	233
Colorado	33	....	....	115	....	148
Connecticut	66	7	....	6	....	79
Delaware	20	2	....	9	....	31
District of Columbia	24	1	....	4	....	29
Florida	56	31	....	....	....	87
Georgia	136	11	1	46	....	194
Idaho	27	14	....	....	....	41
Illinois	413	19	....	40	....	472
Indiana	101	13	....	44	....	158
Iowa	69	6	....	76	....	151
Kansas	47	9	....	34	....	90
Kentucky	87	1	....	18	3	109
Louisiana	115	8	....	5	....	128
Maine	76	10	....	4	....	90
Maryland	156	4	....	23	1	184
Massachusetts	192	23	11	....	....	226
Michigan	121	6	....	51	3	181
Minnesota	52	6	....	72	....	130
Mississippi	34	7	74	....	....	115
Missouri	171	11	....	66	....	248
Montana	27	17	....	....	....	44
Nebraska	60	7	....	48	....	115
Nevada	2	6	....	6	....	14
New Hampshire	15	3	....	9	....	27
New Jersey	91	16	....	30	....	137
New Mexico	1	1	....	....	78	80
New York	491	45	....	51	24	611
North Carolina	85	7	....	10	....	102
North Dakota	13	12	....	18	....	43
Ohio	166	4	....	60	....	230
Oklahoma	90	33	....	....	....	123
Oregon	48	39	7	....	....	94
Pennsylvania	490	25	....	....	....	515
Rhode Island	30	2	....	....	....	32
South Carolina	88	6	....	10	....	104
South Dakota	41	12	....	....	....	53
Tennessee	97	6	110	12	3	228
Texas	135	16	....	85	....	236
Utah	19	3	....	15	....	37
Vermont	47	4	....	6	....	57
Virginia	99	16	....	16	....	131
Washington	57	45	....	....	....	102
West Virginia	74	14	....	23	....	111
Wisconsin	97	10	....	75	....	182
Wyoming	4	4	....	16	....	24
Totals	4708	667	203	1128	118	6824

This table shows the total number registered during 1911 in each state by the various methods. The first column shows the recent graduates registered, the second column, the old practitioners (graduates of 1906 and previous years), the third column the non-graduates, and the fourth column shows the number licensed through reciprocity. It is interesting to note that states which have registered large numbers through reciprocity have examined very few old practitioners. The chief exception is New York, which has arranged reciprocal relations with only seven other states. The fifth column shows those registered without written examination under various exemption clauses. The last column shows the total number of physicians registered by all methods in each state during the year.

TABLE I.—PHYSICIANS REGISTERED THROUGH RECIPROCITY BY STATE EXAMINING BOARDS DURING 1911.

State Boards of	Total Reg. through Reciprocity, 14 State.	Alabama	Arkansas	California	Colorado	Delaware	Dist. of Columbia	Georgia	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana	Maine	Maryland	Massachusetts	Michigan	Minnesota	Mississippi	Missouri	Nebraska	Nevada	New Hampshire	New Jersey	New Mexico	New York	North Carolina	North Dakota	Ohio	Oklahoma	Pennsylvania	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia	Washington	West Virginia	Wisconsin	Wyoming.
Arkansas	25	...	...	...	1	...	...	2	6	2	...	8	1	5	...	...	...	1	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	...	1	...	...	...	...	...	...	...
Colorado	115	3	...	1	...	...	...	3	21	2	8	10	2	...	...	...	2	1	1	2	12	4	1	...	1	1	0	...	...	4	3	6	1	1	...	3	1	2	1	1	...	2	2
Connecticut	6	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	5	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Delaware	5	...	...	...	...	...	1	...	...	...	...	...	...	...	...	4	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	3	...	...	...	...	...	...	...	...	...	...	...
District of Columbia	4	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	1	...	1	...	...	...	...
Georgia	46	...	1	...	...	...	...	...	1	1	...	...	...	3	1	7	...	...	...	...	...	...	...	...	...	...	7	...	...	...	1	...	...	11	...	6	4	...	...	...	...	...
Illinois	40	...	...	...	...	...	...	...	4	7	6	12	...	...	...	3	...	...	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	...	...	...	2	...	...	...	...
Indiana	44	...	...	...	...	...	...	...	18	...	...	2	...	...	...	2	...	...	...	...	2	...	...	...	...	...	2	...	...	9	...	...	...	...	...	...	...	...	...	...	...	...
Iowa	70	...	...	1	1	...	...	...	33	3	...	1	...	...	...	1	...	...	...	...	12	...	...	...	...	2	...	...	...	3	...	...	...	...	...	...	...	...	...	...	5	...
Kansas	54	...	...	1	1	...	...	...	3	...	3	...	2	...	...	1	...	1	1	...	15	...	...	...	...	...	...	...	...	1	...	...	...	2	...	1	...	...	...	...	...	...
Kentucky	18	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	11	...	2	1	...	...	...	...
Louisiana	5	...	1	...	...	...	...	...	1	1	...	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Maine	4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	...	...	...	...	...	...	...	...	...	...	1	...	1	...	...	...	...	...	...
Maryland	52	...	...	...	2	1	1	1	...	...	...	...	1	...	...	32	...	2	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1	1	10	...	...	...	...
Michigan	51	...	...	...	...	...	...	2	16	4	1	...	2	...	1	2	...	...	2	...	3	...	...	...	1	3	...	1	4	...	...	1	...	...	...	1	1	...	...	...	...	...
Minnesota	72	...	...	...	2	...	...	...	23	...	12	1	...	...	...	3	...	6	...	...	...	4	...	...	1	...	1	2	...	2	...	...	...	...	...	...	1	...	1	...	...	...
Missouri	66	...	...	...	...	2	...	...	10	3	11	17	...	...	...	1	...	1	...	...	9	...	...	...	...	...	...	...	...	1	...	...	...	...	...	1	1	1	1	...	...	...
Nebraska	48	...	1	...	3	...	...	...	13	3	7	4	1	...	...	1	...	2	2	...	5	...	...	...	...	...	...	...	...	3	...	...	...	2	1	...	...	...	...	...	...	...
Nevada	6	...	...	...	...	...	...	...	5	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...
New Hampshire	9	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	...	...	...	...	...	1	...	...	4	...	...	...	...	...	...	...
New Jersey	30	...	...	...	3	4	...	...	4	...	...	...	1	...	5	...	...	...	...	...	...	...	...	1	...	8	...	...	...	...	...	...	...	...	2	...	...	2	...	...	...	...
New York	51	...	...	...	...	1	...	...	...	4	...	...	...	...	...	...	...	17	...	...	...	...	...	...	2	...	...	...	4	...	...	...	...	...	22	...	...	1	...	...	...	...
North Carolina	10	...	...	...	...	...	2	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...	3	...	...	...	1	...	...	...	...	...
North Dakota	18	...	...	...	...	...	...	...	5	...	...	...	...	...	...	...	...	...	9	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...
Ohio	60	...	1	...	...	...	...	...	8	3	1	...	...	...	1	5	...	12	...	...	...	1	...	...	2	9	...	...	...	...	...	...	1	3	...	11	...	...	...	...	...	...
South Carolina	10	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4	3	...	...	...	...	...
Tennessee	12	...	...	...	...	...	2	...	...	...	1	...	5	1	...	...	...	...	1	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...
Texas	85	...	6	...	...	3	...	...	18	1	4	5	10	...	1	3	...	1	1	...	10	6	1	...	...	...	...	...	...	2	...	...	...	...	1	...	7	3	...	...	...
Utah	15	...	...	1	...	...	...	...	4	...	4	1	...	...	...	...	...	2	...	...	1	...	...	...	...	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Vermont	6	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4	1	...	...	...	...	...	...	...	...	...	1	...	...	...	...
Virginia	16	...	...	...	...	...	7	...	...	...	...	...	...	...	...	1	...	1	...	...	...	...	...	...	...	...	...	6	...	...	...	1	...	...	1	...	...	...	...	...	...	...
West Virginia	23	...	...	...	...	...	2	...	...	...	...	...	...	...	...	6	...	...	1	...	...	...	...	...	...	...	...	...	1	...	...	...	...	1	...	6	...	...	...	...	...	...
Wisconsin	75	...	1	...	...	...	...	...	58	2	4	2	...	...	...	4	...	4	4	...	1	2	...	...	...	...	2	2	1	...	...	...	1	...	...	7	...	...	...	...	...	...
Wyoming	16	...	...	3	...	...	...	...	7	...	1	3	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...
*Total	1128	3	11	1	16	9	23	7	236	27	63	50	42	8	14	52	2	69	29	2	59	46	2	6	14	1	42	16	7	40	3	12	4	2	28	10	2	36	28	7	45	41	2

* Total received from each state through reciprocity.

This table shows the number of physicians registered by each state through reciprocity during 1911. "Reciprocity" is not the best term to use, however, since some states, Colorado for instance, register candidates who have satisfactory credentials including licenses, regardless as to whether the state issuing the original license reciprocates with those or not. Taking New York as an example, reading from left to right, the table shows that New York registered a total of 51 applicants through reciprocity during 1911, of which number 1 came from Delaware, 4 from Indiana, 17 from Michigan, 2 from New Jersey, 4 from Ohio, 22 from Vermont and 1 from Wisconsin. Reading from above downward, the table shows that 42 physicians left New York during 1911 and registered in other states under the reciprocity provision, of which number 10 registered in Colorado, 5 in Connecticut, 2 in Indiana, 3 in Michigan, 8 in New Jersey, 1 in North Carolina, 9 in Ohio, 2 in Utah and 2 in Wisconsin. Colorado leads, having registered 115 physicians through reciprocity, followed by Texas which registered 85, Iowa with 76, Wisconsin with 75, Minnesota with 72 and Missouri with 66. It is interesting to note in what states the original licenses were issued. The table shows that of the 1,128 applicants registered through reciprocity 236, or 20.9 per cent. obtained their original licenses in Illinois and 69 the next largest number, were first registered in Michigan. The states which furnished the three next highest numbers were Iowa with 63, Missouri with 59, Maryland with 52 and Kansas with 50.

TABLE M.—RECIPROCAL REGISTRATIONS IN FIVE YEARS
Showing What States Issued the Original Licenses

State.	Physicians Going from States Named During					
	1907	1908	1909	1910	1911	Totals.
Alabama*	2	4	2	..	3	11
Arizona*	..	1	2	..	..	3
Arkansas	1	..	1	32	11	45
California*	2	2	1	2	1	8
Colorado	5	10	12	13	16	56
Connecticut*	..	2	2	..	..	4
Delaware	1	2	1	6	9	19
District of Columbia	15	14	13	11	23	76
Florida*	..	..	1	1	..	2
Georgia	10	18	10	14	7	59
Idaho*	..	1	1	..	..	2
Illinois	240	225	220	286	236	1207
Indiana	30	33	46	50	37	196
Iowa	126	94	77	84	63	444
Kansas	33	32	41	63	50	219
Kentucky	21	53	30	74	42	220
Louisiana	3	..	2	9	8	22
Maine	16	24	18	15	14	87
Maryland	25	30	25	41	52	173
Massachusetts*	6	3	3	..	2	14
Michigan	62	63	51	51	69	296
Minnesota	29	23	35	31	29	147
Mississippi*	1	1	1	1	3	7
Missouri	79	61	58	91	59	348
Montana*	..	..	..	3	..	3
Nebraska	30	47	53	42	46	218
Nevada	2	4	2	3	2	13
New Hampshire	1	2	8	1	6	18

State.	Physicians Going from States Named During					
	1907	1908	1909	1910	1911	Totals.
New Jersey	27	46	29	16	14	132
New Mexico*	..	1	7	1	1	10
New York	79	100	59	224	42	504
North Carolina	1	4	7	7	16	35
North Dakota	3	6	5	8	7	29
Ohio	39	35	47	45	40	206
Oklahoma	4	3	5	21	3	36
Oregon*	..	1	..	..	..	1
Pennsylvania	15	15	7	21	12	70
Rhode Island*	..	1	1	..	..	2
South Carolina	2	4	7	5	4	22
South Dakota	4	1	1	..	2	8
Tennessee	5	14	21	45	28	113
Texas	12	10	4	23	10	59
Utah	1	3	4	1	2	11
Vermont	12	20	24	27	36	119
Virginia	11	15	26	31	28	111
Washington*	..	..	..	2	7	9
West Virginia	6	21	36	45	45	153
Wisconsin	27	42	46	31	41	187
Wyoming	1	..	2	1	2	6
U. S. Army	..	..	3	..	..	3
U. S. P. H. & M.-H. Serv.	..	..	..	2	..	2
Canada	..	..	..	2	..	2
Foreign and Misc.	..	..	10	..	..	10
Totals	989	1091	1167	1502	1128	5877

This table shows that 5,877 candidates were registered through reciprocity during the last five years and that until 1911 there was a positive increase each year over the registration of the previous year. A study of the totals for the different states shows that of the 5,877 registered during the four years 1,307 or 22.2 per cent. obtained their original licenses in Illinois. This is more than twice the number coming from any other state. The states furnishing the next highest numbers are New York, with 504, Iowa, with 444, and Missouri with 348. The states marked with an asterisk (*) do not have reciprocal relations and would not appear in this table except for the fact that some states, like Colorado and New Jersey, will accept a physician's credentials if satisfactory, whether the state issuing his original license returns the favor or not.

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[*For other information see second page following reading matter*]

SATURDAY, MAY 25, 1912

STATISTICS OF STATE BOARD EXAMINATIONS

We are presenting this week, for the ninth consecutive year, tabulated statistics based on examinations conducted by state medical licensing boards. With the exception of one minor sectarian board, our returns for the year 1911, published in this issue, are complete; at no previous time have we had such ready cooperation on the part of state licensing boards. This is in marked contrast with conditions in 1903, when reports from a large number of boards could not be obtained, owing, in most instances, to the fact that records of examinations and licensure were not kept. The various statistical tables are worthy of careful study. A few comments will not be out of place, although the reader must take them as suggestive of further study of the tables themselves.

FACTS REGARDING EACH STATE

The various tables give much information regarding medical licensure in each state. For example, Tables A and B show the medical colleges from which the applicants received their degrees, the total number of applicants examined, the number registered, the number rejected and the percentage rejected. These tables also allow of comparison of the results in any one state with the results in other states. Table F shows that occasionally a board appears to be lenient with graduates of medical schools located in its own state, although in other states a larger percentage of graduates of those schools may be rejected. Table G shows the totals registered by each state for the last five years. Table K shows the totals registered by all methods, including those registered by reciprocity and under exemption clauses; it also shows what states registered non-graduates. Table L shows the number of physicians licensed through reciprocity as well as the states where these physicians received their original licenses, and Table M gives the totals of physicians leaving each state during the last five years to obtain licenses elsewhere through reciprocity.

FACTS REGARDING EACH COLLEGE

The tables also give much information regarding medical colleges. For example, Tables A and B show in what states graduates of each college were examined; they show the number who passed and the number who failed in each state, the total examined in all states, the number who passed, the number who failed and the percentage of failures. In fact, Tables A, B and C permit a comparative study of medical colleges and furnish an important side-light on any investigation of medical colleges which may be undertaken. Table D shows the results for the medical colleges grouped by states; Table E furnishes an interesting study of the larger colleges — those having fifty or more graduates examined during the year — and allows of comparison between colleges of nearly equal size. The mere fact that a college has large classes is no indication that it furnishes a better medical training. In fact, these data show that often the contrary is true. Tables H, I and J give a classification of medical colleges based on the failures of their graduates at state board examinations. This classification should not be taken alone in forming conclusions regarding medical colleges. Occasionally low-grade colleges may have less than 10 per cent. of failures, owing probably to the fact that only a few graduates were examined, or that they were all examined in the home state. On the other hand well-equipped and fairly good colleges may occasionally have between 10 and 20 per cent. of failures, especially if they are in states having more rigid examinations. It is very seldom, however, that a well-equipped and well-conducted medical college receives more than 20 per cent. of failures of its graduates at state licensing examinations. This classification of colleges is interesting, however, and throws an important side-light on the classification prepared by the Council on Medical Education following an actual inspection of the colleges.

TOTAL REGISTRATION IN ALL STATES

These statistics also show the number of candidates coming from Canadian and other foreign medical colleges. In short, they give an accurate record of the number and source of those who are entering the practice of medicine each year in this country. Without the data published this week, it could not be known that 6,824 physicians were licensed in this country during 1911, and that this included 5,578 who were registered by examination, 118 who were registered under the various exemption clauses, and 1,128, mostly old practitioners, who were registered under the provision for reciprocity.

STATISTICS ACCURATE AND RELIABLE

The work of collecting and publishing these statistics was begun by THE JOURNAL in 1903, but since the creation of the Council on Medical Education they have been developed as an important part of the Council's work. Every report received from the state licensing boards is now carefully checked, duplications are avoided, errors are corrected and the statistics are thereby rendered accurate and reliable. This is made possible through the enormous amount of data collected by the Council regarding medical colleges, students and grad-

nates. Through the possession by the Council of complete alumni lists of all existing medical colleges, the Council is in position to avoid charging a college with a failure which may have been erroneously accredited to it when, in fact, the candidate who failed was a graduate of some other college.

INFLUENCE ON MEDICAL LICENSURE

These statistics have been much more than a mere numerical record of physicians examined and licensed, however, and probably no one has recognized their value more than have the state licensing boards themselves. As a result, in many states splendid systems of record-keeping are now to be found where formerly, in several states at least, no records whatever were kept, and in several other states the systems were far from perfect. During the last four or five years, furthermore, they have furnished abundant argument for practical tests in state license examinations and have undoubtedly had much to do with the improved character of these examinations and the better methods of conducting them.

INFLUENCE ON MEDICAL COLLEGES

But medical colleges also have been largely influenced by the publication of these statistics. Where previously they may have been unaware of the weaknesses in their methods of teaching, these statistics have shown them how frequently their graduates fail at the state license examinations. The results have been marked improvements in their equipment, the securing of better teachers and the adoption of better methods. In fact, a review of the statistics published during the last several years shows that a number of colleges have materially reduced the failures of their graduates at state license examinations.

COOPERATION MUTUALLY ADVANTAGEOUS

As will be understood by the careful reader, these statistics have their greatest value when taken in connection with other known facts regarding medical education. They are made more accurate and reliable through the data kindly furnished by medical colleges; they are based on reports received direct from state boards, but through the careful checking of those reports, errors are frequently corrected, the state boards are notified, and in this way state records are also made more accurate. The statistics published this week, therefore, have been made possible only through the cordial cooperation of both the state boards and medical colleges and for this cooperation we again express our acknowledgments.

SMALL-POX AND VACCINATION IN THE UNITED STATES

To those interested in preventive medicine and the public health the practice of vaccination for the prevention of small-pox is always a subject of interest. In the countries where vaccination has been consistently and uniformly practiced, small-pox, which formerly was one of the most common diseases, has become one of the rarest. This is notably true in Cuba, Germany, France, England, Porto Rico and the Philippine Islands. In the continental United States small-pox has been widely prevalent for a number of years, thousands of cases being reported annually. No section of the country seems to be free from the disease, although during some years certain states have had but few reported cases. This prevalence of the disease indicates a general disuse of the practice of vaccination, or its limited application. In this country a general vaccination law is impossible of enactment, as the authority to legislate on matters of this kind is vested in the several states. The effect of a general law might be attained by the enactment of similar measures in the several states, but uniformity of results would still be lacking because of varying degrees of enforcement.

In a recent bulletin issued by the Public Health and Marine-Hospital Service[1] the laws and regulations of the several states relating to vaccination have been compiled and analytically compared. It is shown that there is a marked lack of uniformity, and that legal requirements for compulsory general vaccination exist only in Kentucky, the Philippine Islands and Porto Rico.

In Kentucky, the law requires that children shall be vaccinated within twelve months after birth. All minors and adults are also to be vaccinated. Persons coming into the state to reside are to be vaccinated within six months. But there seems to be no penalty for violation of the law and the statute has not been enforced. The state board of health recommends that all persons be revaccinated as often as once in five years, although this is not compulsory. In the Philippine Islands, every parent or person in charge of a child over 3 months of age is required to present it for vaccination. Every person not furnishing satisfactory evidence of immunity to small-pox must be vaccinated as often as required by the health authorities. Provision is made for public vaccinators and gratuitous vaccination. In Porto Rico, the board of health requires that every person shall possess a certificate of vaccination. Provision is made for public vaccinators to vaccinate gratuitously all persons making application.

Arizona, Hawaii, Maryland, New Mexico and North Dakota have laws requiring the vaccination of children, which, if enforced, would in time produce a population of which a large proportion would have been vaccinated at least once. In Arizona the law specifies that parents and guardians shall cause minors or other persons in their care or custody to be vaccinated. In Hawaii, every child is to be presented for vaccination within six months after birth. In Maryland, it is made the duty of parents and guardians to have children under their care vaccinated within twelve months after birth or as soon thereafter as practicable. Guardians are also to have other persons under their control vaccinated prior to November 1 each year, unless such persons have been previously

1. Kerr, J. W.: Vaccination, an Analysis of the Laws and Regulations Relating Thereto in Force in the United States, Pub. Health Bull. 52.

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vaccinated. In New Mexico, it is the duty of the county school superintendents to see that all children of school age in their respective counties are vaccinated or have been vaccinated within a year. In North Dakota, parents or guardians are to cause minors or other persons under their care or custody to be vaccinated.

The effect of a law depends entirely on the manner and extent of its enforcement, and these in turn are determined to a large extent by the appropriation made available for the purpose. For this reason the presence of a law on the statute books does not always mean that its requirements are being carried out.

Although small-pox has been widely prevalent in the United States for years, it has, probably because of its general extreme mildness, received less attention than should have been given to it. In many sections it has been so mild that the case death-rate has been as low as 0.2 per cent., or one death in 500 cases. This is quite at variance with the usual experience with the disease. In most countries, the case death-rate varies from 15 to 40 per cent. and this was apparently true in the United States previous to 1898. The general mildness of the present form of small-pox should not produce the belief that the people of this country are peculiarly immune or resistant to the disease, as it has been shown by repeated local outbreaks of the virulent form that no such immunity exists. The fact that the disease is at present usually mild in no wise removes or lessens the need for the general practice of vaccination and revaccination.

The existing prevalence of the disease offers an unusual opportunity for the collection of data showing the prophylactic value of vaccination and the infrequency with which the disease attacks those protected by this means. For this reason health authorities would do well to ascertain in each case reported whether the patient had ever been vaccinated, and if so, how long before the attack An array of evidence would thus be accumulated which would go far toward convincing any who might otherwise not appreciate that vaccination is the least expensive, most direct and only sure means by which the disease can be efficiently controlled.

LIFE WITHOUT BACTERIA

The question whether or not life is possible without bacteria was propounded years ago by Pasteur. That some of these lower forms are not indispensable we are reminded by the experiences of their undesired invasions and the consequent manifestations of disease. Yet in the midst of superlative health still other microorganisms are continually with us in countless numbers. They inhabit the alimentary tract and become our constant companions from birth until death. A single milligram of intestinal contents may contain 150 millions of bacteria. Such statistics make one pause to inquire whether the existence of the individual has not, after all, become adapted or adjusted to this elaborate intestinal flora, and whether the interrelation has not in truth become an indispensable requisite of comfortable existence. In other words, is not the symbiosis of host and visitor mutually advantageous?

Science has made numerous endeavors to answer the questions here raised, for they touch on some of the fundamental factors of our existence. The chapters of the story of these experimental attempts are full of entrancing interest. The repeated failures, the tentative successes, the unexpected complications, the renewal of hope and reduplication of efforts—these are the experiences encountered. We often wonder why our popular writers go so far afield in search of inspiring themes when tales of fascinating truth remain untold on almost every page of the history of science. Somehow the interest of the uninitiated always seems to center in far-away doings.

The first positive answer was formulated by Nuttall and Thierfelder[1] in Berlin as the result of most laborious investigations which seemed, once for all, to settle the question. They removed guinea-pigs under aseptic conditions from the mother by cesarean section, maintained them in an atmosphere of sterilized air and fed them on sterilized food. Despite the complete absence of bacteria in their intestines from birth on, the animals were able to thrive for a period of ten days during which they were constantly cared for.

Professor Schottelius,[2] who has just retired from the chair of hygiene at Freiburg in Baden, soon objected to the brief duration of the classic experiments of Nuttall and Thierfelder. He turned to a new experimental possibility early suggested by Pasteur, namely, the hen's egg. By a series of painstaking precautions and most ingenious devices Schottelius succeeded in keeping fertilized eggs bacteriologically sterile and in artificially hatching chicks free from bacteria. These young animals ate the sterilized foods furnished to them; nevertheless they sickened and died. But, if in due season a culture of bacteria derived from hen's excrement was added to their sterile food, the chicks throve thereon and developed vigorously. Accordingly Schottelius regards intestinal bacteria as indispensable for the normal nutrition of vertebrates, including man. He conceives that the usefulness of the microorganisms lies in the favorable modifications which they bring about in the foods by making them more suitable for absorption. They also are assumed to stimulate the intestinal wall and induce normal peristalsis; while some of the alimentary species act as antagonists to unfavorable invaders of the gastro-intestinal tract. The views of Schottelius received substantiation from observations of Moro,[3] who noted that the larvæ of certain lower forms, cultivated in a sterile medium, showed severe symptoms of abnormal growth. Similar experiences were reported by Mme. Metchnikoff.[4]

1. Nuttall, G., and Thierfelder, H.: Ztschr. f. physiol. Chem., 1895, xxi, 109; xxii, 62; xxiii, 231.
2. Schottelius, M.: Arch. f. Hyg., 1908, lxvii, 177.
3. Moro: Jahrb. f. Kinderh., 1905, lxii, 467.
4. Metchnikoff, Mme.: Ann. de l'Inst. Pasteur, 1901, p. 603.

The confusion of results has served only to stimulate interest. In Metchnikoff's laboratory at the Pasteur Institute in Paris, Cohendy[5] has repeated the work of Schottelius, profiting by the failures of the latter. The trials were far more prolonged. The answer was clear. Life without bacteria is possible for at least one species, the chick, normally provided with a rich microbial flora. This aseptic life is not attended with any detriment to the organism.

Positive experiments always supersede failures. The victory for the moment is against the bacteria. It appears that Cohendy has carried the chicks beyond the stage, if there be such, at which their digestive functions still require microbial assistance. No undue accumulation of alimentary débris was noted in the aseptic animals, nor was there evidence of impaired digestion. We conclude, therefore, that while the intestinal flora may be useful to the animal it is not indispensable. Another fact deserves to be noted. The introduction of saprophytic microorganisms in large numbers into sterile chicks in a single day was not attended by direful consequences. This suggests that the tolerance for bacteria is hereditary rather than gradually acquired by the individual.

Obviously the method of experimentation so successfully employed by Cohendy lends itself to the investigation of many problems regarding the rôle of specific bacteria. It will henceforth be possible to infect an organism that is free from microorganisms and study the consequences. If the experiences just reported can be confirmed on other species, the supposed biologic interrelation between the individual and his bacteria will no longer appear in the light of a compulsory companionship; and our attitude toward the microbial population inhabiting our digestive tube will in consequence assume a different significance.

5. Cohendy, M.: Expériences sur la vie sans microbes, Ann. de l'Inst. Pasteur, 1912, 106.

A BIOLOGIC DIAGNOSIS OF PREGNANCY

The so-called immunity reactions of the living organism, which have been the subject of intensive study in recent years, afford illustrations of responses which are little short of marvelous. Such phenomena as the development of the precipitin reaction when foreign serum is introduced into the body, the remarkably specific character of the various manifestations of anaphylaxis in animals and man, the development of typical agglutination powers or hemolytic tendencies when products strange to the individual enter the circulation — all of these behaviors bear testimony to the chemical alertness, so to speak, with which foreign invasions are met and anticipated.

In connection with the modern study of these features it has been ascertained that foreign proteins in particular, and in no small degree fats and complex carbohydrates also, behave like a distinctly extraneous substance when they are introduced directly into the circulation, despite the fact that they constitute our familiar nutrients. In many respects there is a remarkable similarity between human blood and sheep's blood. Each has its plasma and its corpuscles, and the resemblances in physical and chemical characters are manifold. Yet the substitution of one blood for the other is physiologically impossible. The organism protests with a series of immunity responses. The same is true when foreign food products, such as were previously mentioned, find their way into the blood. Indeed, the alimentary tract has as one of its chief duties the task of making the entrance of the unchanged foreign foodstuffs impossible. Everything ingested must, as far as possible, first be converted into a physiologic product assimilable by the species involved. Beyond the alimentary barrier everything assumes a "native" character; for its foreign features have been transformed in the preparation which foodstuffs experience in the digestive tube.

Curiously enough, it seems from recent investigations which we owe in particular to Abderhalden[1] that the immediate response of the organism to the introduction of foreign proteins, fats or carbohydrates directly into the circulation — the parenteral mode of introduction, as it is now called in distinction from the enteral path—is the appearance of enzymes adapted to digest the unusual components of the blood. In part, of course, the parenterally introduced foodstuffs are at once eliminated by the kidneys like any foreign substance not directly utilizable in the body; but evidently provision is also made to denaturize the foreign proteins, etc., immediately by digestive disintegration — in other words, ultimately to render them homologous. When, for example, canesugar is injected into an animal, inverting enzymes are said to make their appearance in the blood plasma. If fats are introduced without digestive preparation, the lipolytic power of the blood becomes enhanced. Truly, if these findings of Abderhalden are substantiated we are face to face with a remarkable protective response on the part of the organism.

The question has arisen as to whether there are ever liberated into the blood substances which, though components of some part of the organism as a whole, are in reality foreign to the blood. A case in point is furnished by the conditions pertaining in pregnancy. Are derivatives of placental or fetal tissues liberated into the maternal circulation and, if so, does the maternal organism respond by some protective scheme? Abderhalden[2] has found indications in the blood of pregnant individuals of the presence of enzymes capable of digesting placenta protein derivatives. These "protective enzymes," as he terms them, are never found in the blood of nongravid females; but they are present in the blood during the entire course of pregnancy. Appropriate tests for these enzymes have made it possible to diagnosticate

1 Abderhalden, E.: Synthese der Zellbausteine in Pflanze und Tier, Berlin, 1912.

2 Abderhalden, E., and Kiutsi, M.: Biologische Untersuchungen über Schwangerschaft, Ztschr. f. physiol. Chem., 1912, lxxvii, 249.

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pregnancy with great certainty by a simple biochemical examination of the blood.

If it shall be found that such "protective" responses are a characteristic reaction to the escape of "foreign" substance into the circulation, it is easy to believe that similar "protective enzymes" may be liberated into the blood-stream in carcinoma and related conditions. The field is a fertile one and a good harvest of discovery is promised.

ORGANIC AND INORGANIC PHOSPHORUS COMPOUNDS

The alleged unique value of so-called "organic" phosphorus compounds in nutrition has been so largely exploited that it becomes desirable to consider the evidence from every available direction.[1] The need for phosphorus as a constituent of tissues and secretions does not call for serious comment any more than does the requirement of oxygen or of nitrogenous compounds for the maintenance of life. When, therefore, simple salts of phosphorus are elevated to the importance of life-sustaining elixirs or marvelous tonics it is quite justifiable to inquire wherein this supreme efficiency manifests itself. The claim of phosphates as brain foods and as antidotes to mental fatigue has lost its appealing force even in the lay press, where it used to be in vogue in the advertising columns.

The best refutation of a dubious claim is a conclusive experiment. If individuals can grow and build effective tissues out of inorganic phosphates as well as from organic forms of phosphorus the subtle superiority of the latter at once begins to vanish. Since our last reference[1] to the ease with which inorganic phosphates can be utilized for synthetic purposes in the organism, further experimental contributions have appeared. They deal with the relative availability of various organic and inorganic phosphorus compounds — lecithin, phytin, nucleoprotein, casein, nucleic acid and disodium phosphate — in the production of milk, a secretion notably rich in phosphorus in various forms of which casein is most conspicuous. What is the comparative rôle of these phosphorized food-substances in the elaboration of the mammary secretion?

It would be easy and even fascinating to postulate some individual part for each of these unlike compounds to play in nutrition—a possibility suggested by the very diversity of their occurrence in the economy of nature. Fingerling[2] has attempted to ascertain to what extent each of the compounds referred to can alter or enrich the phosphorus content of milk. The effectiveness of his experiments, on goats, was enhanced by the fact that the materials to be tested were added to a ration already deficient in phosphorus, thus giving every opportunity for special advantages to manifest themselves. None of the substances exerted any specific influence whatever on the activity of the mammary glands. Neither the quantity of milk nor its individual constituents were increased. Furthermore — and this calls for especial emphasis — the organic phosphorus products exerted no more favorable influence than the inorganic ones, giving further proof that the animal organism can satisfy its need of phosphorus adequately by means of inorganic phosphates. It is quite possible, according to Fingerling, to cover the needs of milk production in respect to lime and phosphoric acid in this way, without fear of any detrjment to the physiologic integrity or functioning of the mammary gland. Incidentally, in connection with these facts we may again point out how little the food factor modifies the quality of the milk.

In reiterating some of these recent observations from time to time it is not our purpose to deny the possibility of the specific effects of food constituents or to prejudge the value of special nutrients. The important point rather is to insist on the insufficiency of pure empiricism or personal impression to settle the problems of dietotherapy once for all, even when the opinions are promulgated with the authority of a prominent name. Points of view change in science.

1. The Nutritive Value of Inorganic Phosphates, THE JOURNAL A. M. A., April 20, 1912, p. 1198; also the discussion of Sanatogen, ibid., p. 1216.
2. Fingerling, G.: Einfluss organischer und anorganischer Phosphorverbindungen auf die Milchsekretion, Biochem. Ztschr., 1912, xxxix, 239.

LATENT MENINGITIS AND ENCEPHALITIS IN ACUTE INFECTIOUS DISEASES

It has long been noted that nervous symptoms may arise in the course of familiar infectious diseases, such as typhoid fever, without any apparent anatomic changes either in the meninges or in the brain ("meningismus," "meningitis without meningitis"). On the other hand, definite meningitis and encephalitis, easily recognizable with the nakel eye, may be found after death in such diseases, and yet the symptoms observed during life may have differed in no way from those presented by the first group.

Studying the relation between the symptoms and the anatomic changes in cases of this kind, Oseki[1] found that in some instances, diagnosed as meningitis clinically, the post-mortem examination showed no gross changes except perhaps a moderate amount of edema and occasionally a very slight opacity of the membranes. On microscopic examination, however, there were found definite acute inflammatory changes with leukocytic and lymphocytic infiltration both in the meninges and in the brain substance; in some cases cells had accumulated about ganglion cells which were more or less changed and disintegrated; definite foci of necrosis were occasionally found also in both the brain and the spinal cord. The inflammatory infiltration was particularly pronounced about the small blood-vessels. Here, consequently, there was an acute meningo-encephalitis, and as the process in the brain substance was most marked next to the meninges it seemed reasonable to assume

1. Oseki: Beitr. z. path. Anat. u. z. allg. Path. (Ziegler's), 1912, lv, 538.

that the cause of the process spread downward from the meninges. In another group of cases, however, in which similar meningeal symptoms were present during the patients' lives, the changes were confined entirely to the brain substance, showing that in encephalitis the meningeal symptoms may predominate as previously described by others. Clinically the patients presented symptoms of hallucination, great motor restlessness, stiffness of the back and neck, loss of consciousness, jerking of the extremities, differences in the pupils, etc. In most of the cases referred to the bacteria found in the central nervous system were the same as those of the primary disease.

It is of special interest to note that in the course of his work, Oseki encountered cases of pneumonia in which meningitis and encephalitis were found to be present after death but of which there had been no symptoms whatsoever during life. In only one such case could the changes in the meninges be recognized with the naked eye. This fact, namely, that meningitis may occur in the course of pneumonia without typical symptoms, indicates that our figures as to the frequency of this complication in pneumonia really do not mean very much because they are not based on the study of cases that have been examined thoroughly after death, microscopically as well as macroscopically. The four cases of clinically latent meningitis described by Oseki happened to occur in a series of ten. Accurate figures as to the relationship between pneumonia and meningoencephalitis can be obtained only by the systematic and complete study of all the cases of pneumonia.

Speaking generally, we may say that in acute infectious diseases meningitis and encephalitis may be latent in the sense that in cases with definite symptoms the changes may be microscopic only, and also in the sense that in pneumonia at least there may be no observable clinical symptoms in cases with definite microscopic changes. In the cases of so-called "meningismus," gross examination is not sufficient to exclude actual meningitis or encephalitis; careful microscopic examination must be made. No doubt much light would be thrown on the problems of diagnosis and prognosis in cases of the kind in question if the conditions found in the nervous system after death in a large series of cases could be correlated with the results of complete clinical observations including examination of the cerebrospinal fluid.

Current Comment

NO FILTH, NO FLIES

"Swat-the-fly" campaigns for 1912 are well on. The elimination of this filthy and dangerous insect is a desirable end. As we have observed already,[1] the housefly, in addition to being a demonstrated agent in the spreading of typhoid, is strongly suspected, on more or less conclusive evidence, with relation to a large number of infections, including cholera, dysentery, the infantile diarrheas, diphtheria and contagious ophthalmia. In an excellent paper, Stockbridge[2] remarks that about a billion flies were killed in various campaigns of 1911 — a statement which seems impressive until one considers the number of flies which escaped the slaughter. In Washington, D. C., alone, some 7,000,000 flies were killed by the "swat," the trap, drowning, sulphur fumes and even by electrocution. Dr. Howard, of the Bureau of Entomology, points out that in the congenial climate of that city seven generations of flies may be produced in a single summer. One female fly will lay on an average a batch of 120 eggs; and if all these eggs from a batch laid in the middle of April should hatch and reproduce their kind in like manner, there would be by autumn, from a single female fly, a progeny of nearly six thousand billion. And as each female may lay four batches of eggs, the figures for their unchecked development through a summer stagger the imagination. To "swat the fly" by the billion, therefore, means little so long as those that survive have unchecked opportunity for breeding. There is even more weight, therefore, in Stockbridge's statement that during 1911 filthy breeding-places were cleaned up, which, if left alone, would have given opportunity for the propagation of incalculable billions. Better than "swatting" the fly is the prevention of its breeding by cleaning up the places where it thrives — the insanitary privy, the dead dog and horse allowed to lie unburied until putrid, the dung-heap, the uncovered garbage can and the spittoon. Some of the methods by which such insanitary conditions may be eliminated, or at least minimized, were mentioned some time ago.[3] Descriptions of the details are freely provided by the health departments of many states and municipalities, and by civic leagues and like organizations.

EXPERIMENTAL ALKAPTONURIA

That rare perversion of metabolism known as alkaptonuria, which discloses itself to the eye of the untrained by the almost black color assumed by the urine on standing, still remains obscured in mystery. The chemical nature of the compound, homogentisic acid, to which the alkapton color is attributable, is now well known. It is unquestionably a derivative of the proteins; and numerous clinical investigations of alkaptonuric individuals have shown that the excretion of the characteristic compound is increased by, or practically proportional to, the metabolism of protein. Indeed, the effective agents in its production are two of the amino-acid complexes of the albuminous bodies, namely, phenyl-alanin and tyrosin. These aromatic derivatives may be fed as such, or in the form of proteins which yield them, or they may arise from the destruction of tissue protein; in any event the output of homogentisic acid in alkaptonuria corresponds with their liberation in the organism. The facts just outlined have raised the question whether the alkapton substance is ordinarily an intermediary

1. House-Flies and Bacteria, THE JOURNAL A. M. A., May 11, 1912, p. 1445.

2. How to Get Rid of Flies, World's Work, April, 1912.

3. The Fly and Typhoid, THE JOURNAL A. M. A., Aug. 28, 1909, p. 720.

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product of the metabolism of the two mentioned aromatic amino-acids in every individual — a stage in their transformation which never comes to light except in these rare patients who have lost the capacity of further destroying a substance which is easily oxidized in a normal individual — or, whether the pathologic feature involved represents an unusual course of metabolism rather than an abnormal interruption of a normal physiologic reaction. It has not been possible to decide definitely between these views, chiefly because of the failure heretofore to reproduce alkaptonuria experimentally. This lends great interest, therefore, to a successful attempt by Abderhalden.[1] By feeding tyrosin in the enormous quantities of fifty grams in a single day (corresponding to many hundred grams of pure protein) he has succeeded for the first time in inducing an experimental alkaptonuria in a healthy man who had never shown any symptoms of this condition. Although this result by no means demonstrates the nature of the perversion effected, the relation of the abnormal product to the aromatic radicals in the proteins becomes established with added certainty.

FEDERAL MEAT INSPECTION

A few months ago we called attention to the fact that the borax trust and other interests unfriendly to Dr. Wiley, in criticizing the ex-chief of the Bureau of Chemistry, took occasion to laud the Bureau of Animal Industry. The latter bureau has charge of examining the meat-supplies of the country and the argument of the anti-Wiley forces was that, while the Bureau of Chemistry has had a somewhat stormy career, the Bureau of Animal Industry was conducted "without friction." We suggested at the time that any department of government service, supposed to be operated in the interest of the public, which got along "without friction" was to be viewed with suspicion. Recent developments seem to point to the source of the lubricant which has permitted the Bureau of Animal Industry to operate without any friction developing between itself and the vested interests concerned. The Bureau of Chemistry has, it is true, been much criticized in the last four or five years — but the criticisms have come, not from the consumers, but from the manufacturers. Now the Bureau of Animal Industry is coming in for its share of criticism, but with this difference, that representatives of the consumer and not of the packing-houses are the critics. Charges have been made by competent and unbiased observers that the federal meat inspection laws are administered in the interest of the packers rather than for the protection of the public, and that meat that would not be accepted at the ports of entry in Europe is passed by the federal meat inspectors for home consumption. As might be expected, the investigation of the Bureau of Animal Industry exhibits Secretary Wilson and Solicitor McCabe "running to form" as special pleaders for the "interests." The enormous harm done to the health of the American people through the maladministration of the Food and Drugs Act and the federal meat inspection law can hardly be estimated. The responsibility for it rests on Secretary Wilson and Solicitor McCabe, whose incompetency — or something else — has rendered the enforcement of these laws a joke.

1. Abderhalden: Bildung von Homogentisinsäure nach Aufnahme grosser Mengen von l-Tyrosin per os, Ztschr. f. physiol. Chem., 1912, lxxvii, 454.

GRADUATION REQUIRED IN MISSISSIPPI

During the recent session of the Mississippi legislature the medical practice act was amended so that hereafter a candidate seeking license to practice medicine in that state must have graduated from a reputable medical college. He must also present credentials showing that he has had a preliminary education at least equal to the course of a standard high school. The securing of this amendment takes Mississippi out of the group of states having practically no requirements either of preliminary or medical education and brings it at once among those which are in position to enforce reasonably high standards. The securing of this legislation in Mississippi shows that the south is having its share in the rapid progress now being made in the regulation of the practice of medicine.

WHAT IS THE MATTER WITH TENNESSEE?

The recent success in Mississippi of securing an amendment to its practice act leaves only one state in the south—Tennessee—which still furnishes a wide-open door for practically any candidate who applies regardless of his lack of preliminary or medical education. Whether the examinations given constitute a sufficient safeguard to the public against these incompetents may be doubted since the statistics published this week show that out of the 213 candidates registered by examination in that state during 1911, 110, or 51.6 per cent., were non-graduates, and that in 1910, out of 315 candidates licensed, 142, or 45.1 per cent., were non-graduates. How long will the people of Tennessee tolerate these conditions? Unless that state can join in the modern movement for progress and secure a better medical practice act, it is clearly destined to be the dumping-ground of the illiterate and incompetent who are being turned away from the surrounding states. We shall be surprised if we do not hear of progressive measures being adopted in this state before long.

A CLEAN DAILY

Whatever one may think of the religious views and scientific vagaries of the followers of Mrs. Eddy, in one particular at least they have set a high and consistent example to other religious sects. The *Daily Christian Science Monitor* is the recognized organ of this church. While it follows the general plan of other dailies, even the casual observer is struck at once by the character of the advertising. The "patent medicine" display and the "quack doctor" advertisement are absent. So are the alluring promises of the get-rich-quick schemer, the promoter and the faker. One can realize the part which newspaper advertising has played in developing the nostrum business, by placing the *Monitor* beside the ordinary newspaper and comparing them page by page.

In one, the lies of the swindler and the faker are everywhere; Pink Pills, Woman's Friend, Pure Malt Whisky, Sure Cure for Consumption, Cancer Cure, Headache Cure, Rheumatism Cure, dopes and frauds for all ills, cover the pages. Even the personal columns and the want ads are not safe, for here appears that miracle of benevolence, that kind woman, who, having found a cure when all hope was lost, will send it to you free — and will at the same time send your name and address to the quack for whom she is a stool-pigeon. In the Christian Science daily all these are absent. On reading its pages one realizes that printer's ink has been quackery's best friend. If every other religious paper would adopt an advertising policy similar to that of the *Christian Science Monitor*, much of the support of medical frauds would be destroyed. Probably some of these papers, deprived of the revenue furnished by swindlers, might be compelled to suspend publication, but this would only emphasize the extent to which they were dependent for life on quackery.

A SUMMER HEALTH SCHOOL IN KANSAS

Since the secretary of the Kansas State Board of Health started the slogan "swat the flies," and led the way in the campaign against common drinking-cups, roller-towels and other long-accepted abominations, the public has come to look to Kansas for advanced ideas on health matters. The announcement of the second annual summer school for Kansas physicians and health officers, to be held at the state university, June 10-15, is another evidence of progress in the sunflower state. County and city health officers and physicians interested in public health work are to devote a week to the study of methods of sanitation, water-supply, sewage-disposal and other sanitary measures. Medical officers of the United States Public Health and Marine-Hospital Service and other well-known scientific men are to lecture, conduct laboratory courses and give demonstrations of food, drug and house inspections for the benefit of those in attendance. This plan will without doubt be of great value in developing competent local health officers and in improving the health of the people of the state.

THE CENTENNIAL OF THE RHODE ISLAND MEDICAL SOCIETY AND ITS NEW HOME

A year or more ago we noted in our news columns that plans had been completed by the Rhode Island Medical Society for the erection in Providence of a library building which was to be the permanent home of the state association. An architect's drawing of this handsome building has been on display in our reception-room for some months. This project, which with that of Maryland, sets a splendid example for other state associations, is now consummated and on the hundredth anniversary of the Rhode Island Medical Society, June 12 and 13, both events will be celebrated by a scientific and material feast covering the two days. Details of the program will be found in the news columns. The society and its officers are to be congratulated on these two auspicious events and we offer them our heartiest felicitations.

SANITARY REFORM A SOCIAL MOVEMENT

In an unusually broad and far-sighted editorial in a recent issue, the Toledo (Ohio) *Blade* in a few lines practically sounds the key-note of the public health campaign. Commenting on a circular recently issued by one of the large life-insurance companies, the *Blade* says, "The conservation of public life is becoming a great social question, one in which society is taking over responsibilities and functions left heretofore in the hands of the individual." This sums up the entire situation and also indicates the cause for the marked change taking place in the attitude of the public toward the prevention of disease. Previous to our present knowledge regarding the transmission of contagious diseases, sickness was largely a personal matter between the patient, the family and the physician. In cases in which the fact but not the manner of contagion was known, local health officials could quarantine the patient and prevent others from coming into contact with him. Until thirty-five years ago, however, no one knew exactly what caused the various contagious diseases or how this cause was transmitted from one individual to another. To-day, we know that yellow fever and malaria are transmitted by the mosquito, bubonic plague by the rat and the flea, hookworm disease through infected soil, typhoid through contaminated water or milk, or by flies or personal contact; tuberculosis, diphtheria and other contagious diseases through the discharges of patients. Disease is no longer a matter which concerns the individual alone. All the conditions of life and of living enter into the causation or suppression of disease. Many of these factors are beyond the control of the individual. They can be controlled only by society, acting in an orderly and effective manner, that is, by the state. As a result, most of the effective measures for public health of recent years have been more largely social and economic than medical. School inspection, tenement-house inspection and reform, improved conditions in workshops, stores and factories, efforts to secure pure food, pure water and pure milk for the community, free parks and play-grounds, municipal baths—all these, although not medical in the old sense of the word, are primarily for the health of the individual and of the community. Yet they are all of them possible only through the collective efforts of the state or of the municipality. The *Blade* is right in characterizing the public health movement as a great social movement, and in predicting "a broad and enormously endowed campaign for the preservation of public health leading to free aid for all and the building of insurmountable barriers against disease."

AMERICAN MEDICAL DIRECTORY

In order to give our readers an idea of the new American Medical Directory, there is inserted in the advertising pages in the front part of this issue a colored picture of the volume displaying the cover and new thumb-index. Extracts from the various parts of the book, showing the style and contents, accompany the picture, while the explanatory notes state what the work is and the reasons for its existence.

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Medical News

ARIZONA

Medical Bill Killed.—The bill recently passed by the senate, providing that the state medical board should give representation to more than one school of medicine, was defeated in the state assembly, May 8, by a vote of 19 to 16.

State Association Meeting.—The twenty-first annual meeting of the Arizona Medical Association was held in Bisbee, May 7-9, under the presidency of Dr. Francis E. Shine, Bisbee. The annual essay was presented by Dr. W. Warner Watkins, Phoenix, on "Tuberculosis, a Disease of the Individual;" the address on medicine, by Dr. P. V. K. Johnson, Los Angeles, was on "Infant Feeding;" and that on surgery, by Dr. Andrew S. Lobingier, Los Angeles, was on "The Surgery of the Right Hypochondrium in the Light of Newer Pathology." President A. H. Wilde of the State University, made an address on "The Relation of the University of Arizona to the Arizona Medical Association." Globe was selected as the next place of meeting and the following officers were elected: president, Dr. John E. Bacon, Miami; vice-presidents, Drs. Ira E. Huffman, Tucson; E. W. Adamson, Douglas, and Roy E. Thomas, Phoenix; secretary, Dr. W. Warner Watkins, Phoenix; treasurer, Dr. George A. Bridge, Bisbee; councilors, Dr. William I. Simpson, Phoenix; R. D. Kennedy, Globe, and John R. Whitesides, Kingman, and essayist for 1913, Dr. Mark A. Rodgers, Tucson. The first day's session was held in Bisbee and that of the second day in Douglas.

ILLINOIS

Personal.—Dr. W. B. Arnold, Rockford, is reported to be seriously ill at his home.——Dr. D. D. Kirby, Canton, will sail for Germany immediately after the meeting of the American Medical Association, Atlantic City.——Dr. A. L. Mann has been appointed city physician of Elgin.

Egyptian Medical Society.—The twelfth annual meeting of the Egyptian Medical Society, composed of representatives from Williamson, Johnson, Massac, Pope, Saline, Hardin and Pulaski counties, will be held at Creal Springs, June 13 and 14, under the presidency of Dr. C. E. Trovillion, Metropolis.

Chicago

Personal.—Dr. Frank Billings has started for Europe.——Dr. and Mrs. Fenton B. Turck have returned from abroad.——Dr. Daniel H. Williams has resigned as a member of the board of trustees and of the surgical staff of Provident Hospital.——Dr. Blackburn has assumed his duties as a member of the staff of the Mount Pleasant (Ia.) State Hospital.——Dr. Emil Beck was the guest of honor at a dinner given by the Detroit Academy of Medicine, May 14.

Industrial Plants and Tuberculosis.—The plan of the Chicago Tuberculosis Institute for the Infection and Suppression of Tuberculosis in the great industrial plants has recently been adopted by Swift and Company, packers. The plan is in operation either wholly or in part at the plant of the International Harvester Company, Montgomery, Ward and Co., and the Chicago Telephone Company. The Sears, Roebuck Co. have been using a similar system. This plan was formulated by Dr. Theodore B. Sachs, chairman of the committee on factories and calls for a tuberculosis clinic. First preventive and suppressive measures are taken and afterward oversight is exercised over those afflicted with tuberculosis.

MICHIGAN

State Will Not Let Leper Reenter.—Secretary Dixon of the State Board of Health has notified the health authorities of Iowa that Herman Hirschfield, a leprosy suspect, and formerly an alderman of Bay City, cannot be returned to Michigan from Centerville, Ia., where he is now held in quarantine.

Clean-Up-Day.—By proclamation of the governor, the State Board of Health and the Department of Fire Marshals of Michigan agreed on May 15 as a day to be devoted to cleaning up and improving sanitary conditions. On this day the people were requested to do those things which would tend to materially lessen the danger to human life from disease and fire.

Recent Work of State Board.—Among the recent activities of the Michigan State Board of Health are the engagement of Prof. Edward D. Rich, professor of sanitary engineering in the State University, Ann Arbor, to inspect the summer resorts. Special consideration is to be paid to the water supply and the disposal of garbage, sewage, etc.; a complete survey and investigation of public water supplies is to be begun immediately, under the charge of a competent engineer, samples from each supply being examined in the State Board of Health laboratory. The investigation of the extent, distribution and causes of feeble-mindedness will be continued for a second six months. A hotel inspector has been set to work, who represents the Departments of Labor, Dairy and Food, and Health.

MISSOURI

Price Set on Flies.—In order to give the fly-killing campaign an impetus, the St. Joseph Board of Health at its last meeting decided to pay ten cents a hundred for dead flies delivered to the clerk of the board, from the first to the fifteenth of May.

Sanitary Railway Stations and Cars.—The State Board of Railway and Warehouse Commissioners, at its meeting in Kansas City, April 30, issued an order affecting all depots serving towns of more than 200 inhabitants. The order provides that water tanks must be installed, kept clean and filled with pure and clean water; that a tank shall be placed in each waiting room and that the attendant shall be permitted to keep sanitary cups for sale cheap; and furthermore that all depots, passenger stations and passenger coaches shall be provided with water closets and lavatories.

St. Louis

Appropriation for Mosquito Warfare.—The municipal assembly has appropriated $5,000 for the local war on mosquitoes.

The Outten Tablet.—There will be unveiled in a few days, without public ceremony, in the building of the St. Louis Medical Library and Medical Society, a bronze tablet to the memory of the late Dr. Warren B. Outten, bearing the inscription: "Erected by the Surgeons Who Served Under Him."

Personal.—Dr. David Linn Edsall, formerly professor of medicine in the University of Pennsylvania, but for the last year professor of preventive medicine in Washington University, St. Louis, has been elected Jackson professor of clinical medicine in Harvard Medical School, vice Dr. Frederic Cheever Shattuck, Boston.——The City Council has approved the mayor's appointments of Drs. W. John Harris, J. B. Shapleigh and Martin F. Engman as members of the City Hospital Board.

MONTANA

Personal.—The accidental discharge of a target rifle inflicted a painful wound in the shoulder of Dr. B. E. Wiley, Kalispell, May 6.——Dr. J. P. Aylen, chief surgeon of the Northern Pacific Hospital, Missoula, was seriously injured in an automobile accident in that city recently.

State Society Meeting.—The thirty-first annual meeting of the Montana State Medical Association was held in Helena, May 7, 8 and 9, under the presidency of Dr. T. C. Witherspoon, Butte, and the following officers were elected: president, Dr. J. M. Scanland, Warmsprings; vice-presidents, Drs. George McGrath, Hamilton, and J. H. Irwin, Great Falls; secretary, Dr. H. D. Kistler, Butte (reelected); treasurer, Dr. C. T. Pigot, Roundup (reelected); and delegate to the American Medical Association, Dr. Donald Campbell, Butte. The next meeting of the association will be held in Great Falls.

NEBRASKA

Amendment Not Adopted.—In THE JOURNAL, April 13, it was stated that the Douglas County Medical Society, at its March meeting in Omaha, had adopted an amendment opposing contract practice. The amendment was proposed at the March meeting, but was overwhelmingly defeated at the April meeting, and the censors of the society were asked to present a definition of contract practice at a subsequent meeting.

NEW HAMPSHIRE

New Officers.—Hillsboro County Medical Society, at Manchester: president, Dr. C. H. Colcombe, Brookline; secretary-treasurer, Dr. George S. Foster, Manchester.

State Society Election.—At the one hundred and twenty-first annual meeting of the New Hampshire Medical Society, held in Concord, May 8-9, under the presidency of Dr. George W. McGregor, Littleton, the following officers were elected: president, Dr. John W. Staples, Franklin; vice-president, A. W. Mitchell, Epping; secretary, Dr. D. E. Sullivan, Concord; treasurer, Dr. D. M. Currier, Newport; trustees, Drs. Charles R. Walker, Concord; Herbert L. Smith, Nashua, and John M. Gile, Hanover; delegate to the American Medical Association, Dr. John Z. Shedd, North Conway, and alternate, Dr. Irving A. Watson, Concord.

NEW JERSEY

Diphtheria at Camden Hospital.—Owing to the presence of diphtheria in the Cooper Hospital, Camden, no visitors will be admitted to the wards for at least two weeks. More than eighty persons in the surgical ward were treated with antitoxin.

Advance Antituberculosis Legislation.—A bill just passed by the New Jersey legislature and signed by the governor provides that tuberculosis patients who refuse to obey the regulations laid down by the State Board of Health concerning the prevention of their disease, and thus become a menace to the health of those with whom they associate, shall be compulsorily segregated by order of the courts, in institutions provided for this purpose. If such a patient refuses to obey the rules and regulations of the institutions in which he is placed, he may "be isolated or separated from other persons and restrained from leaving the institution." The law further provides that all counties in the State of New Jersey shall within six months from April 1, make provision in special institutions for the care of all persons having tuberculosis in these counties. The state treasury will subsidize each county to the extent of $3.00 a week for each person maintained in these institutions except for those who are able to pay for the cost of maintenance.

NEW YORK

Personal.—Dr. William F. Matthews of the borough of Queens has been appointed Fourth Deputy Health Officer of the port of New York.——Dr. J. R. Williams, Rochester, sailed for Europe, May 1.

New York City

Personal.—Dr. S. J. Meltzer, of the Rockefeller Institute for Medical Research, has been elected a member of the National Academy of Sciences.——Capt. Arthur R. Jarrett, assistant surgeon of the 13th Infantry, N. Y. N. G., will succeed Major De Forest, the regimental surgeon, who has resigned.

Excursions for Sick Children.—The Sanitarium for Hebrew Children at Rockaway Park announces that there will be excursions for mothers living in the congested districts of New York on certain days from July 3 to September 3. On these occasions the mothers and children are provided with food and other accessories for a day's outing.

Need More Prevention Camps.—The waiting list of applicants for the Tuberculosis Preventorium for Children is so large that two more open camps with a capacity of thirty-two beds apiece are needed. These camps will cost $12,000 each, toward the construction of which Jacob Schiff has just offered $5,000 contingent on the collection of the balance or $20,000.

NORTH CAROLINA

Public Health Meeting.—A public health meeting was held in Canton, May 10, at which addresses were delivered by Drs. A. A. Kent, Lenoir, president of the Medical Society of the State of North Carolina; Dr. J. Howell Way, Waynesville, president of the State Board of Health, and Dr. W. S. Rankin, Raleigh, secretary of the State Board of Health. After the meeting, the local profession entertained the visiting physicians and the Haywood County Medical Society at an elaborate banquet.

Honorary Degrees Conferred.—At the convocation of the University of North Carolina, May 8, at which the new medical building was dedicated, the honorary degree of doctor of laws was conferred on Dr. R. H. Lewis, Raleigh; Provost Edgar F. Smith of the University of Pennsylvania, Philadelphia, and Dr. Charles Wardell Stiles, U. S. P. H. and M.-H. Service, Washington, D. C. Dr. Smith presented the University Medical Library with a copy of a rare volume containing the original lectures of Dr. John Morgan, the founder of the medical department of the University of Pennsylvania.

NORTH DAKOTA

Personal.—Drs. E. P. Quain, Bismarck; E. M. Darrow, Fargo; B. D. Verret, Rolla, and J. Grassick, Grand Forks, have been appointed delegates at large to the Congress on Hygiene and Demography.——Dr. G. M. Olson has been appointed health officer of Fargo.

State Society Meeting.—The annual meeting of the North Dakota State Medical Association was held in Valley City, May 14-15, and the following officers were elected: president, Dr. A. J. McCannel, Minot; vice presidents, Drs. M. MacGregor, Fargo; R. H. Beek, Lakota, and E. P. Quain, Bismarck; secretary, Dr. H. J. Rowe, Casselton (reelected); treasurer, Dr. F. J. King, St. Thomas; and councilors, Drs. J. D. Taylor, Minot; E. A. Pray, Valley City, and G. Goldseth, Jamestown.

OKLAHOMA

State Association Meeting.—The twentieth annual meeting of the Oklahoma State Medical Association was held in Shawnee, May 7, 8 and 9, under the presidency of Dr. C. L. Reeder, Tulsa. The following officers were elected: president, Dr. J. L. Shuler, Durant; vice-presidents, Drs. J. A. Walker, Shawnee; J. M. Byrum, Shawnee, and J. H. Barnes, Enid; secretary, Dr. Claude A. Thompson, Muskogee. Enid was selected as the next place of meeting.

PENNSYLVANIA

Philadelphia

Alumni Week at Jefferson.—Jefferson Medical College has issued a special roster of lectures, clinics and demonstrations for alumni week, May 27 to June 1, inclusive; also June 7 and 8, to which all graduates of medicine will be welcome.

Alumni Appeal for Funds.—An appeal for funds for the erection of an addition to the maternity department of the University Hospital has been issued to the alumni of the University of Pennsylvania by Dr. Barton Cooke Hirst. The estimated cost of the addition will be $80,000 and room will be provided for 100 beds.

Flexner Portrait Presented to University.—The portrait of Dr. Simon Flexner, professor of pathology in the University of Pennsylvania from 1899 to 1903, which was recently presented to the university, has just been hung in the Medical Laboratory Building. The picture was painted by Adele Herter, of New York.

Changes in the University Medical Department.—Dr. Allen J. Smith, dean of the Medical Department of the University of Pennsylvania, announced, May 18, the reorganization of the Medical Department and the amalgamation of the University Hospital and the John H. Musser department of Medical Research, with Dr. Alfred Stengel as directing head. Drs. David Riesman and Joseph Sailor, formerly assistant professors, have been made professors of clinical medicine. Dr. Stengel will have two newly appointed associates, Drs. J. Harold Austin and O. H. Perry Pepper, who will devote practically their entire time to the university work and will be occupied with the care of hospital patients, teaching and medical research. Dr. Richard M. Pierce, occupant of the John H. Musser professorship of medical research, will continue in that position, and the two newly-elected professors of clinical medicine will have general supervision of the extramural teaching at the Philadelphia General Hospital.

The Baby-Saving Show.—Philadelphia's first Baby-Saving Show held in Horticultural Hall, was formally opened May 18, at 3 o'clock by Director Porter of the Department of Public Safety, who officiated in the absence of Mayor Blankenburg. The other speakers were: Dr. Joseph S. Neff, Director of Public Health and Charities and Edwin D. Solenberger, general secretary of the Children's Aid Society of Pennsylvania. Dr. Joseph S. Neff presided at the evening session and the speakers were: Drs. L. T. Royster, of Norfolk, Va., and M. Howard Fussell, professor of applied therapeutics in the Medical Department of the University of Pennsylvania. On the second floor, series of booths portray the contributing causes of infant mortality, showing actual conditions of the slum districts: open air markets with food fly-covered, city dumping grounds within a block of public schools, objectionable pig pens in the lower section of the city, neglected lots, foul with refuse, etc. In all, there are twenty-seven exhibits. There are model kitchens and model living rooms and much attention is paid to the demonstrations of feeding of babies. The mothers' clubs and other women's clubs have joined in the show and beside their exhibits there are those of the Bureau of Chemistry of the United States Department of Agriculture, the Russell Sage Foundation, the Pennsylvania State Department of Health, the New York Diet Kitchen Association, the Board of Health of Richmond, Va., the Thomas Wilson Sanatorium of Baltimore, the Infant Welfare Society of Chicago, and the United States Public Health and Marine-Hospital Service. Importance of the care of the eyes of babies at birth and the results of negligence will be dealt with by the exhibit of the New York Association for the Protection of the Blind. The department of health and charities has a separate display, showing the need for immediate report of communicable diseases and telling of the precautions to be taken in a neighborhood where children have whooping cough and where measles are prevalent. The Infant Hygiene Conference in connection with the show was held the evening of May 22 and the morning of May 23.

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RHODE ISLAND

New Officers.—Washington County Medical Society: president, Dr. John L. May; secretary-treasurer and censor, Dr. John Howard Morgan, both of Westerly.

Personal.—Dr. F. S. Graves, a member of the pathologic and clinical staff of the Rhode Island Hospital, Providence, has resigned and will continue pathologic work in the Boston City Hospital.

Centennial of State Medical Society.—On June 12 and 13 the centennial celebration of the Rhode Island Medical Society will be held in Providence. On the first day, an outing will be held at Rocky Point, with entertainments including a ball game, wrestling match and a shore dinner. In the evening the new Rhode Island medical library will be formally opened with a reception to the invited guests. On the second day there will be an automobile tour of Providence and vicinity, and the delegates and invited guests will be the guests of the president at luncheon at the Wammamoisett Country Club. In the afternoon the annual meeting will be held, the oration being given by Dr. Abraham Jacobi, New York City, president-elect of the American Medical Association. This will be followed by the presidential address, the delivery of the keys of the new Rhode Island Medical Library to the society and the induction of the new officers. In the evening the annual banquet will be held at the Eloise. Dr. John Champlin Westerly will act as anniversary chairman and Hon. George H. Utter, M.C., and S. H. Davis, Esq., will be the speakers. The new library building is intended as a permanent home for the society and its library, and has been erected at a cost of $50,000, the bulk of which has been contributed by the medical profession of the state.

GENERAL

Meeting of Tropical Medicine Society.—The ninth annual meeting of the American Society of Tropical Medicine will be held at the Hotel Rudolph, Atlantic City, June 3, under the presidency of Dr. Joseph H. White, U. S. P. H. and M.-H. Service, New Orleans. The subject of the presidential address will be "The Eradication of Malaria." At the afternoon session there will be a general discussion on beriberi.

Climatologists to Meet.—The second annual meeting of the American Climatological Association will be held in Hartford, Conn., June 10-12, under the presidency of Dr. A. D. Blackader, Montreal. The annual dinner will take place on June 11 and June 13 has been set apart as a day of recreation. The automobile ride for the members and their ladies will include a visit to the Gaylord Farm Sanatorium at Wallingford.

New England Jefferson Alumni Meet.—The New England Associates of the Graduates of Jefferson Medical College, Philadelphia, held its annual meeting and dinner May 8, Dr. John C. Berry, Worcester, Mass., acting as toastmaster. The following officers were elected: president, Dr. John C. Berry, Worcester (reelected); vice-president, Dr. P. F. Gahan, Medford, Mass.; secretary, Dr. Angus MacOdrum, Cambridge, Mass., and treasurer, Dr. Frank I. Payne, Westerly, R. I.

Laryngologists Elect Officers.—The American Laryngological Society closed its eighteenth annual meeting with the election of the following officers: president, Dr. H. Holbrook Curtis, New York; vice-president, Eastern section: Dr. George C. Stout, Philadelphia; Southern section: Dr. J. W. Jervery, Greenville, S. C.; Middle section: Dr. William E. Sauer, St. Louis; and Western section: Dr. Hill Hastings, Los Angeles; secretary, Dr. Thomas J. Harris, New York City, and treasurer, Dr. Ewing W. Day, Pittsburg.

Conference on Industrial Diseases.—The second National Conference on Industrial Diseases will be held at the Hotel Marlborough, Atlantic City, June 3-5. On the second day, the morning session will be devoted to the investigation of industrial diseases; the afternoon session to health problems in modern industry and the evening session to the state promotion of industrial hygiene. June 5, in the morning, a joint session will be held with the Section on Preventive Medicine and Public Health of the American Medical Association, when industrial diseases will be considered. In the afternoon the immediate legislative program for the promotion of industrial hygiene will be taken up. There will be also an industrial hygiene exhibit, illustrating the industrial processes dangerous to health and the evil effects of occupational diseases.

Conference of Charities and Correction.—The thirty-ninth National Conference of Charities and Correction will be held in Cleveland, June 12-19. The following societies in affiliation with the conference will hold meetings in Cleveland: The National Conference on the Education of Dependent, Truant, Backward and Delinquent Children, June 10-12; the Seventh Biennial National Conference of Jewish Charities, June 9-12; the National Association of Public Relief Officials; the National Probation Association, beginning June 11; and the National Association of Societies for Organizing Charity, June 12. The topics to be discussed include "Children," "Families and Neighborhoods," with the central thought "The Maintenance of the Family;" "The Relation of Medical and Social Work," which is to be the special topic to be considered at the general session on June 17; "Housing and Recreation;" "Public Supervision and Administration;" "Standards of Living and Labor;" "Immigration;" "Sex Hygiene," and "Courts and Prisons." The Section on the Relation of Medical and Social Work, of which Dr. J. Alexander Miller, New York City, is chairman, appears for the first time on the program. The committee has been divided into seven subcommittees, which have made studies of the medical and social interrelations of the following forms of social work: hospital social service; visiting nursing; industrial diseases and accidents; infant mortality; blindness; insanity and epilepsy and important social diseases including tuberculosis, syphilis, uncinariasis and alcoholism. Dr. Richard C. Cabot, Boston, will give the address on "The Educational Aspect of the Subject" at the general session in which the work of this section is discussed.

LONDON LETTER

(*From Our Regular Correspondent*)

LONDON, May 12, 1912.

The Campaign Against the National Insurance Act: The British Medical Association's New Pledge

It has been shown in previous letters to THE JOURNAL that the medical profession has been completely united by means of the British Medical Association to resist the medical attendance portion of the national insurance act if the demand for the "six points" is not conceded. But there remains one weak point in the strong position occupied by the profession. If the profession will not agree to terms offered to it, one course open to the government is to drop medical benefit entirely and pay the capitation fees to the various benefit societies and leave them to make their own arrangements with the physicians. Now the friendly societies have at present some 7,000,000 members and a large proportion of the profession as medical officers. The passing of the insurance act has greatly increased the membership of the societies, and probably only a very small minority of the insured will remain outside of them. The profession is therefore confronted with the possibility that if it refuses to work the act, it may have to attend the insured under the contract system of the friendly societies—conditions worse than the terms offered in the act. Indeed, one of the six points of the profession is freedom from friendly society control, which has been attained to a certain extent under the act, which is to be administered by committees appointed by government and not by the friendly societies. On the committees, however, is a large friendly society representation, amounting to three-fifths. Friendly society practice has always been unpopular with the profession, as it is badly remunerated, but competition has in most parts of the country provided physicians to work it. Long before the passage of the insurance act was contemplated the British Medical Association endeavored to tackle the problem and improve the condition of friendly society practice, but without much success. When the profession began to organize to resist the insurance act the evils of the contract system in vogue under the friendly societies were frequently mentioned at the meetings and suggestions to abolish contract practice entirely were received with applause. But the problem is a more difficult one than resistance to the act, for contract practice has existed for more than half a century and many physicians derive a considerable portion of their income from it. Nothing was done at first; the profession confined its attention to resisting the act. Now that it is seen that the present system of contract practice is not only an evil but the weak point in the profession's organized resistance against the act, the British Medical Association has made a bold move and attacked the whole contract system. It has framed a supplementary pledge to which it desires to obtain the signature of every physician who signed the previous pledge (i.e., practically the whole profession) not to work the act if the terms are not satisfactory to the British Medical Association. In view of the possibility of the suspension of medical benefit or of its administration in any way contrary to the wishes of the profession, every physician is asked to place in the hands of

the local secretary his resignation of contract practice appointments in so far as they extend to insured persons and to undertake not to accept any appointment so resigned. This would practically amount to the cessation of all contract practice. He is also asked to declare that, after the act comes into operation, he will not render services to any insured person through any voluntary charity, except in cases of urgent necessity, until the terms of the act have been approved by the profession, and not to cooperate with any member of the profession who is under contract to render service to insured persons on terms not approved by the profession. No use will be made of these resignations until the insurance committee of the association is of the opinion that the time is ripe throughout the whole or in certain parts of the country. A defense fund is also being established for the purpose of compensating physicians who may lose by resigning friendly society appointments. Contributions of $50 are being solicited from the whole profession.

The Government Inquiry Into Nostrums: Alarm of the Venders

The government recently appointed a select committee to investigate the sale of "patent medicines" (nostrums) and their advertisement. The venders have immediately taken alarm and under the chairmanship of Sir Joseph Beecham, the proprietor of "Beecham's pills," a committee of the "Owners of Proprietary Articles Section" of the London Chamber of Commerce has met for the purpose of defense. There are some 300 firms engaged in the manufacture of proprietary medicines and foods. The magnitude of the trade interests involved may be judged from the fact that the revenue derived from the tax on proprietary medicines (there is no tax on proprietary foods) amounted last year to $1,600,000. The committee of nostrum-owners has issued a pamphlet setting forth the position of its members. This deals principally with the suggestion made by the medical profession that the composition of all advertised remedies should be stated on the label. The attempt to argue against the suggestion is extraordinarily weak—so weak that it is surprising the nostrum-owners have not preferred silence. They say that such a declaration would not protect the public and would enable unscrupulous persons to manufacture similar articles and to trade on the expenditure and reputation of the original manufacturers. At present, they say, "the public know that when they purchase a well-known proprietary article such article is always of uniform quality and efficiency. If the formula is thrown open to the world and a similar article is manufactured by others there would be varying standards, and the qualities of the article would not be guaranteed or maintained." The pamphlet further states that "the agitation against proprietary medicines and foods has been mainly propagated by the medical profession and is largely founded on the desire of the profession to extend their monopoly and to require the public to purchase medicines only on a medical prescription." The public, it is added, "is protected at the present time when the drug proprietary article contains poison even in an infinitesimal degree, as all such preparations have to be labeled 'poison' in large letters." It will be noticed that the main charge against the present system—that it allows the most extravagant and fraudulent claims to cure all sorts of diseases to be made freely by the proprietors of patent medicines—is absolutely unmentioned in this attempt at defense. The sincerity of the objection that declaration of the composition on the label would lead to imitation may be judged by the fact that the composition of all these articles has been ascertained by analyses made for the British Medical Association and published in a book which has had a large sale.

The National Health Week

The increasing interest taken by the public in the national health is manifested in a new form. A remarkably successful organization, called the "Agenda Club" (things to be done), was founded last year by a group of engineers for the purpose of improving the national health. The means adopted are exceedingly practical, for example kinetograph films are exhibited showing: 1. How to dust a room. 2. How to wash a baby. 3. How rats spread disease. 4. What unfiltered water contains. 5. The right and wrong kind of girl to marry. Local committees have been formed all over the country at places having an aggregate population of 3,000,000 for the purpose of giving synchronized attention to problems of public health in and through any agency, official, public, or private, which at any point touches the problem of health. The object is not only to combat ignorance and apathy among the poor and ignorant but to win the intelligent support of citizens for the constructive work of health officers and school medical officers. It is proposed to collect not money, but services, to this end, and in a thousand ways along the lines of each one's profession or opportunities, and to drive home the concrete statistical facts of the waste of national health and life—tragical facts of death and disease, hopeful facts as to what has been accomplished and what can be accomplished. The results achieved are already far beyond the highest expectation of the club. The latest project is the establishment of what is called "the National Health Week" and this has been taken up all over the country. In a considerable number of churches of all creeds the affinity of cleanliness to godliness and other hygienic points were emphasized last Sunday. One preacher contrasted the loss of 1,600 lives on the *Titanic* with the 50,000 preventable annual deaths from tuberculosis. Another referred to the fact that out of 1,000,000 children born in a year 106,000 died before they were a year old and that many of these deaths could have been prevented.

PARIS LETTER

(From Our Regular Correspondent)

PARIS, May 3, 1912.

Intramuscular Etherization

Intravenous etherization, recommended by Burkhardt, has not become popular in practice for it is not free from danger. In experimenting with this process, Dr. Descarpentries, surgeon of the hospital La Fraternité at Roubaix, devised the method of introducing ether into the organism by the intramuscular route which would avoid the formation of thrombi. He has just made an important report on this subject before the Société de chirurgie of Paris. The instruments needed are a good ether-tight syringe of 10 to 20 c.c. capacity, and a platinum needle 7 cm. long and very slender (0.6 mm.), so that it perforates the muscle with as little injury as possible to the fibers and especially the aponeuroses. After having determined the point of injection the needle, previously sterilized, is inserted so as to make sure that it does not perforate a venule. The ether injection is made slowly and the needle withdrawn little by little. If the subject is thin, the needle strikes bone. It is then necessary to withdraw it about 1 cm. so that the injection may be made into the muscle, otherwise the ether might pour out along the bone toward the ischiatic notch and cause a neuralgia or a sciatic neuritis. In the adult the injections may be made successfully in each of the gluteal regions at intervals of a few minutes so as to avoid producing too much ether vapor and injuring the muscle too much. A black bandage is placed over the patient's eyes in the dark so that he may lose consciousness more quickly and completely. Some patients awaken suddenly as soon as the bandage is removed from the eyes and the light irritates the pupil, but go to sleep again when the eyes are bandaged again. At the time of the first injection, the patient feels a great but very transient pain followed immediately by heaviness of the injected limb. He complains of indefinable malaise, wants to talk and makes some movements; his breath smells of ether. Little by little his speech becomes slow and stammering and he falls into a light slumber broken by incoherent words and slow movements. The sleep becomes more profound and the limbs hang inert. At this point some nausea often appears. The eyes show a sort of nystagmus and sensation disappears little by little. In from fifteen to twenty minutes, anesthesia is obtained. The slumber is very quiet; the face is pale; the pupils show miosis; the respiration is slow, regular and calm. There is no salivation or bronchial secretion and no cyanosis. The heart-beats are strong and their rhythm is slightly accelerated. Muscular relaxation is often perfect. The lid-reflex does not disappear. The patient awakens very slowly. At the end of about one-half hour, sensation reappears. Consciousness seems to return before complete sensation; the patient talks, but does not complain if his limbs are pinched. Generally speaking, to obtain anesthesia it is necessary to inject a few more cubic centimeters of ether than the subject weighs in kilograms. For a woman weighing about 55 kilos (121 pounds), 60 c.c. of ether may be injected in six doses of 10 c.c. each or better in twelve doses of 5 c.c. each. This quantity of anesthetic may be reduced in depressed, anemic or obese patients. It must be increased in nervous, agitated or emotional patients, or in those who do not want or are afraid to lose consciousness. Alcoholics seem to go under the influence of the ether more rapidly than other persons. If too small a quantity of ether is injected the subject does not lose consciousness at the end of twenty minutes. He may then be made to inhale one or two additional doses of 10 c.c. to

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obtain anesthesia a few minutes afterward. If the anesthesia does not last long enough or is not complete enough the patient may be made to inhale a little chloroform or ethyl chlorid. Descarpentries even employs systematically a preliminary inhalation of ethyl chlorid before the intramuscular ether injection in order to obtain a more rapid anesthesia and to avoid causing the patient pain by the two first injections. Dr. Descarpentries has performed within six months about 150 operations (hysterectomy, operation for vesicovaginal fistula, staphylorrhaphy, perineorrhaphy and reduction of congenital dislocations of the hip) even in children aged 5 and old people of 61 without any complications or bad after-effects, such as pneumonia or pulmonary congestion. He has observed in some cases hemoglobinuria, which appears also after intravenous etherization, but disappears in twenty-four hours. Intramuscular etherization seems, the anesthesia of choice for operations on the face, the mouth and the respiratory passages. The method seems especially adapted to be of service in the country and in military surgery since it permits the performance of an operation under general anesthesia without any assistant.

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, May 3, 1912.

Scientific Research on Apes at the Canary Islands

The scientific investigations at Teneriffe have received a new extension by the erection of a station for observing anthropoid apes. Professor Rothmann of Berlin and Frau Professor Selenka of Munich have been sent to Teneriffe by the department of education to make preparations to this end, since it may be expected that in the uniformly warm climate there the animals may be kept in the open air through the entire year under the conditions of life that are natural to them.

Eradication of Diphtheria

A treatise has just appeared entitled "Einführung in die Lehre von der Bekämpfung der Infektionskrankheiten" (Principiples of Suppression of Infectious Diseases), written by Professor von Behring, who has so far recovered from the nervous disease from which he has suffered for many years that he has again taken up his scientific work. The treatise discusses ways and means to stamp out diphtheria, emphasizing that prophylaxis is effective only if the conveyance of infection from person to person is avoided. In school epidemics the closing of the school and the disinfection of the school rooms are of no service because the bacillus-carriers continually reintroduce the virus. According to Behring, one must proceed on the assumption that diphtheria, which was not always an endemic disease in European countries, can again be driven out, like small-pox, which after it had prevailed for centuries in middle Europe, has again become for us an exotic disease. This hope is justified, he says, because the diphtheria bacilli with us do not maintain a vegetative existence in the external world, and because the diphtheria virus does not find in animals favorable conditions for existence, and the diphtheria bacillus is found only in human beings, in cases in which clinical diphtheria is present or has been observed shortly before. All that is necessary, therefore, is a well planned preventive diphtheria campaign, similar to vaccination for small-pox. Two circumstances have worked against this obvious idea. First, the great therapeutic efficiency of the antitoxin, which allows us to count with certainty on the cure of the patient; secondly, the circumstance that the so-called serum sickness may be occasioned by anaphylaxis on repeated injection of the serum. Behring has now succeeded in producing a curative serum which reduces this annoying by-effect to a minimum, so that even hypersusceptible individuals are not liable to develop serum sickness. Moreover he believes that by local treatment with the serum of the nose and throat of bacilli-carriers it may be possible to reduce the opportunities for infection.

Reduction of the Excess of Births in Prussia

Recently published official statistics for 1910 and 1911 show a striking phenomenon of the last two years, namely, the diminishing number of births in connection with increased numbers of marriages. The births for 1910 were 35,119 and for 1911, 69,098 below the average for the decade 1901 to 1910, while the number of marriages in the first year was 10,154 and in the latter 20,897 above the average in that period. It is therefore evident that the fertility of married women has shown a considerable decrease. For each 1,000 of the population there occurred in 1911 30.2 births as contrasted with 31.5 in 1910, 32.7 in 1909, 33.7 in 1908 and 37.4 in 1901, so that in ten years the birth rate has dropped by 7.2 per thousand. The number of deaths in 1911 was 18.1 per thousand, as contrasted with 16.9, 17.9, 18.9 and 21.7 in the four preceding years. According to these figures, the excess of births for 1911 was only 12.1, as contrasted with 14.6 in 1910, 14.8 in 1909 and 1908 and 15.7 in 1901.

The Annual Meeting of the German Internists

The twenty-ninth Deutscher Kongress für innere Medizin was held this year, as usual, in the middle of April at Wiesbaden, under the presidency of Stintzing and it was unusually well attended. This circumstance was chiefly due to the widespread interest in the one and only topic on the order of the day, the "Roentgen Method in the Diagnosis and Treatment of Gastro-Intestinal Diseases." Not only numbers of internists but also of surgeons and many roentgenologists and specialists in digestive diseases were present at Wiesbaden to hear the leading address by Professor Rieder of Munich, who has already done marked service in this field, and the papers and discussions which followed it. There were also present more internists from abroad than usual. It is true that no considerable amount of new facts were presented, but the confirmation of the facts hitherto learned in the field of gastro-intestinal diseases was of great interest, so much the more that certain points in dispute were settled and many extravagant hopes were reduced to their correct measure. In particular it was unanimously established that kinematographic Roentgen pictures possess no essential value either for diagnosis or instruction. Furthermore the fully justified warning was emphasized to regard the examination with the Roentgen rays of the gastro-intestinal canal merely as a diagnostic aid and not as the exclusive basis for conclusions in the clinical case. As a matter of fact, there has been a marked tendency in the articles of many surgeons to neglect the hitherto used methods of examination of the gastro-intestinal tract in favor of the examination by the Roentgen rays. Another point of interest was the difference of opinion on radium and thorium, especially with reference to their therapeutic influence in gout. In this matter also a positive conclusion has not yet been reached. The communications from the clinics of von Noorden at Vienna and Kraus at Berlin on the influencing of leukemia by thorium are full of hope. Of the numerous other communications (of which there were not less than 118 on the program which with a few exceptions were presented within four days) the investigations of Liebermeister (a son of the formerly noted Tübingen clinician) on the almost ubiquity of tubercle bacilli in the blood may be mentioned as exciting particular attention; he claimed after painstaking and extensive researches to have found tubercle bacilli in the blood not only in nearly all his cases of phthisis, but also in patients free from tuberculosis, for instance, in cases of joint disease, sciatica, etc. Professor F. Klemperer of Berlin and following him two other directors of hospitals reported on the curative action of salvarsan injections in scarlet fever. The substance of both of these reports will need to be submitted to a careful reinvestigation before they can be regarded as definitely settled.

Aside from the scientific proceedings, a very important feature of the meeting was the report of a committee on materia medica, appointed by the congress, to which had been referred the task of testing the remedies and food preparations advertised in the medical journals, in order to determine which were objectionable so as to protect physicians and through them their patients against the possibility of imposition. The committee and in conjunction with it the executive committee of the congress presented the following principles as rules to govern the judgment of advertisements: No article will be accepted for inclusion in the list of the congress (1) whose composition is secret. In this sense, "composition" means for simple chemical substances, the scientific name, the empirical formula, and so far as known, the structural formula; for mixtures, the amount of each different constituent in a definite amount of the commercial product; (2) those for which misleading claims are made in the advertisements regarding their origin, preparation, composition and tests for identification; (3) those which show essential differences in composition in different commercial samples. By an essential difference is meant marked variation in appearance, taste, absorbability, or the quality or quantity of action; (4) those substances which being mixtures of well-known substances bear a new name although they show no essential difference from the already well-known mixtures; (5) those regarding whose curative value or innocuousness, unwarranted and misleading claims are made in the advertisements; (6) those whose exploitation is contrary to the true interests of the patients.

Association News

HEALTH TALKS IN ATLANTIC CITY CHURCHES

Preventive Medicine, the Gospel of Hygiene, to be Ably Presented to the Public

Following the excellent plan inaugurated at the Los Angeles session in 1911, by Dr. W. A. Evans, then Chairman of the Section on Preventive Medicine and Public Health, the Council on Health and Public Instruction has arranged to furnish speakers for the churches of Atlantic City for Sunday, June 2, the day preceding the annual session. Speakers have been provided for twenty-two meetings. Of these, one, the address before the Jewish Synagogue, will be given on Saturday morning, June 1. Of the Sunday meetings, six addresses will be given at the morning services, four at afternoon meetings, and eleven in the evening. The following schedule shows the church, the name of the pastor, the time of the meeting, the speaker and his subject, except in a few cases in which the subject is not yet furnished.

Chelsea Baptist Church: Rev. Thomas Cross, 1925 Pacific Avenue. Evening: Tuberculosis, Dr. M. P. Ravenel, Madison, Wis.

First Baptist: Rev. Birney S. Hudson, 15 Mt. Vernon Avenue. Afternoon: Public Health, Dr. W. A. Jones, Minneapolis. Evening: Cleaning Up a State, Dr. Oscar Dowling, President, Louisiana State Board of Health, Shreveport, La.

Central M. E.: Rev. Sherman G. Pitt, 33 S. Maryland Avenue. Evening: Public Health Question, Dr. John A. Witherspoon, Nashville, Tenn.

First M. E.: Rev. U. G. Hagaman, 324 Atlantic Avenue. Evening: The Gospel of Hygiene, Dr. J. N. Hurty, Secretary, Indiana State Board of Health, Indianapolis.

Chelsea Presbyterian: Rev. H. R. Rundall, 49 S. Sovereign Avenue. Evening: Progress of Prevention, Dr. Ennion G. Williams, State Commissioner of Health of Virginia, Richmond, Va.

First Presbyterian: Afternoon: The Medical Profession and Public Health, Dr. Harvey W. Wiley.

Olivet Presbyterian: Rev. Newton Cadwell, 311 Atlantic Avenue. Evening: The Dawn of the Health Age, Dr. W. A. Evans, Chicago.

Westminster Presbyterian: Rev. John McMillan, 25 S. Massachusetts Avenue. Morning: Human Life, Dr. J. W. Foss, Phoenix, Ariz. Evening: The Advantages Gained by Keeping Well and How to Do It, Dr. C. A. Harper, Secretary, Wisconsin State Board of Health, Madison, Wis.

St. Paul's M. E.: Rev. M. E. Snyder, 32 S. Ohio Avenue. Evening: Dr. W. W. Grant, Denver.

German Presbyterian: Rev. John Kliefken, 1304 Pacific Avenue. Evening: A Citizen's Duty in the Fight Against Tuberculosis, Dr. S. A. Knopf, New York.

Christ M. P.: Rev. G. D. Sinkinson, Belmont and Pacific Avenues. Morning: Health in the Schools, Dr. Edward Jackson, Denver.

Trinity M. P.: Rev. George D. Jones, 408 N. Ohio Avenue. Morning: Responsibility for Tuberculosis Control, Dr. F. A. Tucker, President, Indiana State Board of Health, Noblesville, Ind.

People's Church: Rev. Emma E. Nutter Cairns, 2213 Arctic Avenue. Evening: The Religion of the Human Body, Dr. A. B. Cooke, Nashville, Tenn.

Y. M. C. A., 1307 Pacific Avenue. Afternoon: Influence of Disease on Civilization, Dr. Victor C. Vaughan, Ann Arbor, Mich.

Congregation Beth Israel: Rabbi H. M. Fisher. Saturday Morning: Efficient Charity, Dr. John A. Hornsby, Chicago.

Shiloh Baptist: Rev. John H. Henderson, 28 N. Ohio Avenue. Morning: Responsibility of the People in Protecting the Public Health, Dr. E. C. Levy, Health Officer, Richmond, Va. Evening: The Conservation of Life, Dr. F. Park Lewis, Buffalo, N. Y.

Guild Hall, Ascension Church: Rev. Charles M. Niles. Afternoon: Dr. Charles A. L. Reed, Cincinnati.

St. James A. M. E.: Rev. Anderson. Morning: Tuberculosis, Dr. S. A. Knopf, New York.

Colored Y. M. C. A.: Afternoon: Dr. C. E. Cantrell, Greenville, Texas

HOTELS AT ATLANTIC CITY

Reference to the Atlantic City Number, Which Contained Full Information

In view of the fact that there are repeated requests for a list of the Hotels of Atlantic City, and their rates, the committee calls attention to the fact that a full list of the hotels was published in THE JOURNAL, May 4, 1912, pages 1373 and 1374. Full information as to rates and location may be obtained by referring to that issue.

The committee will be very glad to advise members in reference to hotels, or to make reservations for them so that they may be comfortably located. No time should be lost, however, in applying for accommodations, as some of the hotels are already booked to their capacity for the meeting and are turning applicants away.

WILLIAM EDGAR DARNALL, M.D., Atlantic City,
Chairman Hotel Committee.

THE JOURNAL emphasizes what Dr. Darnall says in reference to the list of hotels which has already been published. Letters are continually being received asking for the information which was given in the Atlantic City Number of THE JOURNAL. This issue contained, besides the list of hotels, an illustrated description of Atlantic City, the preliminary programs of all the sections, a list of entertainments, details of railroad rates, a list of the clinics of the Association at Atlantic City, a new feature of this session, and much other information.

Alumni Gatherings

In addition to the alumni entertainments already announced, notice has been received of the following:

Jefferson Smoker, June 4, 8:30 p. m., Schlitz Hotel, Ocean Avenue and Boardwalk.

Clinics at Atlantic City

Attention is here called to the fact that a series of clinics will be given on the Steel Pier at Atlantic City under the direction of the committee of the Association appointed for the purpose. The program of clinics for Monday, June 3, was given in the Atlantic City Number of THE JOURNAL, May 4, page 1375.

Clinics at Philadelphia

Special clinics have been arranged for visiting physicians in Philadelphia, in eye, ear, nose and throat subjects, for May 30 and 31, and June 1, 3, 7 and 8. Regular schedules have been made, and will be posted on the bulletin boards of the various teaching hospitals, and at the College of Physicians.

Marriages

MABLE C. CRUTTENDEN, M.D., Watertown, Conn., to CHARLES STANLEY RAYMOND, M.D., of South Hadley, Mass., May 6.

G. CARL FISHER, M.D., Chicago, to Miss Irma Sophie von Bereghy, of Harrisburg, Pa., at Hammond, Ind., May 6.

HARRY B. ROOP, M.D., Columbia, Pa., to Miss Martha Baldwin, of Huntingdon, Pa., in New York City, April 30.

PAUL MARTIN LENNOX, M.D., Colorado Springs, Colo., to Miss Jetta Gunsolus, of Manitou, Colo., May 8.

JOSEPH CORWIN HOWELL, M.D., Orlando, Fla., to Miss H. Pearl Markham, of Binghamton, N. Y., May 9.

GILBERT CAPSON MCCORMICK, M. D., to Miss Pearle Violet Neafus, both of Wichita, Kan., May 8.

WALTER NORDAL LEE, M.D., Hopkins, Minn., to Miss Ruth Rebok, of Toledo, Iowa, May 1.

ELBERT ENGLISH LAFFERTY, M.D., to Miss Ethel Wilcox, both of Bogalusa, La., May 4.

EDWARD DORSEY ELLIS, M.D., to Miss Mary E. Stebbins, both of Baltimore, May 8.

SIMON KIMMELMAN, M.D., to Miss Bertha Brown, both of Philadelphia, May 5.

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Deaths

Charles Tweed Rodgers, M.D. New York University, New York City, 1874; a member of the Hawaiian Territorial Medical Society; for thirty-six years a resident of the Hawaiian Islands; acting editor of the *Honolulu Commercial Advertiser* in 1889; one of the founders and up to the time of his death a trustee of the Honolulu Public Library; during the period before the overthrow of the monarchy secretary of the annexation committee and also secretary of the executive and advisory councils under the provisional government; later for several years secretary of the Territorial Board of Education and in 1890 acting superintendent of the census of Hawaii; died at the home of friends at Manoa Valley, April 24, aged 70.

William Sanderson Cheesman, M.D. College of Physicians and Surgeons, New York City, 1879; a member of the American Medical Association and New York Academy of Medicine; one of the most prominent surgeons of Central New York and a member of the editorial staff of the *New York Medical Journal;* a member of the board of education of Auburn; attending surgeon to the Auburn City Hospital and a member and trustee of the Seymour Library Association; died at his home in Auburn, May 7, from subacute combined spinal sclerosis, aged 59.

George Long Reagan, M.D. University of Vermont, Burlington, 1865; a member of the Medical Society of the State of Pennsylvania; formerly president of the Schuylkill County and Columbia County (Pa.) medical societies; for the last thirty-one years a resident of Berwick; died at his home in that place, April 7, from cerebral hemorrhage, aged 76.

Eugene Burt Horton, M.D. University of Buffalo (N. Y.) 1902; of Niagara Falls, N. Y.; a member of the American Medical Association; city bacteriologist of Niagara Falls and surgeon to the International Traction Company; died in the Buffalo General Hospital, May 6, from meningitis following an operation on the nose, aged 39.

Alvan Jay Rosenberry, M.D. University of Michigan, Ann Arbor, 1880; a member of the American Medical Association; a practitioner of Menominee, Mich., Wausau, Wis., and Oak Park, Ill., until 1906 and thereafter a resident of Benton Harbor, Mich.; died at his home in Benton Harbor, May 7, from uremia, aged 60.

Anna Lenora White, M.D. New York Medical College and Hospital for Women, New York City, 1888; of New York City; a member of the Medical Society of the State of New York; died in the French Hospital in that city, May 7, from the effects of injuries received in a fall several months before.

Humphrey E Bowman, M.D. University of Maryland, Baltimore, 1839; formerly a practitioner of Shelbyville and Newark, Mo., and for more than half a century a resident of Farmington, Ia.; died at the home of his daughter in that place, April 29, from senile debility, aged 93.

Robert Tracey, M.D. Queen's University, Kingston, Ont., 1862; for several years local surgeon of the Grand Trunk System at Belleville, Ont.; surgeon-lieutenant-colonel during the Riel Rebellion in 1885; died in the Belleville General Hospital, April 20, aged 76.

John W. Lodge, M.D. Medical College of the State of South Carolina, Charleston, 1859; surgeon of Volunteers during the Civil War; for many years resident physician to the Philadelphia Hospital; died at his home in Merion, Pa., May 4, from heart disease, aged 74.

Daniel O'Doherty, M.D. Rush Medical College, 1880; a member of the American Medical Association; for many years a practitioner of Charlotte, Ia.; died at the home of his brother in Danville, Ia., May 2, from cerebral hemorrhage, aged 71.

Samuel Josephus McCurry, M.D. Atlanta (Ga.) Medical College, 1881; a member of the Medical Association of the State of Alabama, and vice-president of the Calhoun County Medical Society; died at his home in Anniston, April 13.

Henry George Davis, M.D. Medical College of Alabama, Mobile, 1872; a member of the Medical Association of the State of Alabama and for the last fifteen years postmaster of Gainestown; died at his home, May 1, aged 79.

Maria Louise Graham Brown, M.D. University of Michigan, Ann Arbor, 1895; a practitioner of Dorchester, Mass., until 1907; died at her home in Marlboro, Mass., April 23, aged 49.

James W. Laughlin (license, Maryland); for more than fifty years a practitioner of Deer Park; died at his home in that place, April 30.

John W. Wright, M.D. McGill University, Montreal, 1878; L.R.C.P., London, 1879; a member of the Ontario Medical Council from 1881 to 1885; died at his home in Picton, February 29, from pneumonia, aged 58.

Robert A. Miller, M.D. Texas Medical College and Hospital, Galveston, 1871; a member of the Sonoma County (Cal.) Medical Society; a veteran of the Civil War; died at his home in Sebastopol, Cal., April 20, aged 79.

Ernest Moraweck, M.D. University of Louisville, Ky., 1895; a member of the American Medical Association; of Louisville; aged 59, was a passenger on the steamship *Titanic*, which was sunk off Newfoundland, April 15.

Roscoe L. Hale, M.D. Rush Medical College, 1854; a surgeon of Volunteers during the Civil War and for more than forty years a practitioner of Sedalia, Mo.; died at his home, April 16, from senile debility, aged 82.

Truman Merrill Griffin, M.D. New York University, New York City, 1883; a member of the American Medical Association; died at his home in Pittsfield, Maine, April 8, from disease of the kidneys, aged 58.

Robert Edward Nelson Heysett, M.D. Rush Medical College, 1890; of Baldwin, Mich.; a member of the Michigan State Medical Society; died in Chicago, May 18, after an operation for appendicitis, aged 43.

Joseph C. Benzinger (license, Maryland, 1909); a practitioner of Baltimore since 1863; surgeon of Volunteers during the Civil War; died at his home, May 4, from heart disease, aged 68.

Frank Leslie Newman, M.D. Jenner Medical College, Chicago, 1906; a member of the American Medical Association; died at his home in Chicago, April 20, from pneumonia, aged 31.

Willard Wheeler Freeman, M.D. (license, Colorado, 1906); formerly a practitioner of Minnesota; died at his home in Eads, Colo., April 13, from arteriosclerosis, aged 72.

Thomas Edmund Hall, M.D. Rush Medical College, 1875; for more than thirty years a practitioner of Minnesota; died at his home in La Crosse, Wis., May 5, aged 57.

John W. Sale, M.D. University of Pennsylvania, Philadelphia, 1850; since 1848 a practitioner of Bedford City, Va.; died at his home from acute laryngitis, aged 85.

Archibald Nicholson, M.D. Baylor University, Dallas, Tex., 1907; a member of the State Medical Association of Texas; died at his home in Dallas, April 30, aged 44.

Horatio Whittmore Pratt, M.D. Harvard Medical School, 1909; of Louisville, Ky.; died at his home in that place, April 25, from congestion of the brain, aged 28.

Carl A. Honell Anderson, M.D. Western Reserve University, Cleveland, Ohio, 1886; of Cleveland, died in the Lakeside Hospital, in that city, April 26, aged 62.

W. L. McCool, M.D. Atlanta (Ga.) Medical College, 1867; died at his home in Jonesboro, Ark., April 20, aged 75, as a result of injuries inflicted by a horse.

Daniel W. Carroll, M.D. Victoria College, Coburg, Ont., 1860; of Ingersoll, Ont.; died suddenly in West Oxford, Ont., April 25, from heart disease, aged 75.

Talbert Smirl (license, years of practice, Illinois, 1892); died at his home in Belleville, Ill., April 19, from chronic interstitial nephritis, aged 78.

Noble F. Nash, M.D. University of Louisville, Ky., 1853; died at the home of his daughter in Waddy, April 27, from arteriosclerosis, aged 81.

Mary L. Phillips, M.D. College of Physicians and Surgeons, Kansas City, Kan., 1897; of Kansas City, Mo.; died in Mineral Wells, Tex., April 17.

Joshua Betterton Owsley, M.D. Medical College of Ohio, Cincinnati, 1862; died at his home in Jacksonboro, Ohio, April 30, aged 80.

Alexander Barack von Wefelsburg, M.D. New Orleans School of Medicine, 1870; of San Francisco; died April 23, from paresis.

Carroll Cleveland Elliott, M.D. University of Southern California, Los Angeles, 1907; died at Soldiers Home, Cal., May 7, aged 33.

Albert David Pyke, M.D. Rush Medical College, 1880; died at his home in Romney, Ind., April 18, from tuberculosis, aged 53.

Ralph G. Turner, M.D. Atlanta (Ga.) Medical College, 1883; died at his home in Augusta, Ga., April 10, aged 49.

James Bacon, M.D. Jefferson Medical College, 1865; of Baltimore; died April 27, from heart disease, aged 65.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

THE FRAUD ABOVE THE LAW

By Samuel Hopkins Adams

[Reprinted from *Collier's*, with additions.]

[Swamp Root, one of the most impudent of fraud "patent medicines," was analyzed by the government chemists who reported that it was "a syrupy liquid containing 8.55 per cent. alcohol by volume and 43.3 per cent. total solids including 42.6 per cent. sugars with a small amount of an aromatic balsam and a laxative principle. There was also present wintergreen, juniper and cardamon." The following article from *Collier's*, May 11, 1912, is of such interest that it is given in its entirety. We have added three illustrations and the information contained in the legends under them.—ED.]

Many patent-medicine frauds escape the law because of their inconspicuousness. Some more important nostrums evade the law by the skill of lawyers, the amiable interpretations of the courts, or their own finesse in discovering loopholes. One triumphantly overrides the law. That one is Swamp Root. It is the greatest, the most profitable, the most widely exploited, and, on the whole, the most profoundly and dangerously fraudulent of all the quack nostrums now conspicuously before the public.

The Post Office Department has been after it. Evidence far more than sufficient for the issuance of a fraud order, shutting Swamp Root out of the mails, was obtained. The evidence was never followed up. No fraud order was issued. What the United States district attorney in the proceedings at first characterized as a sound case for criminal prosecution was prepared for the Department of Justice. Where is that sound case now? Vanished. Dissipated like mist. Forgotten—at least, officially. The Bureau of Chemistry, to which the investigation of offenses against the Food and Drugs Act is intrusted, sought repeatedly to bring Swamp Root into court. Scores of other fraud medicines, less flagrant in offense and less dangerous in effect, had been forced to face prosecution and its attendant distasteful publicity; but not Swamp Root. In the very department of the government upon which the law's enforcement depends, it found a friend in the now notorious McCabe, solicitor for the Department of Agriculture, to which the bureau is subordinate. Delay after delay was granted to it. It parleyed and paltered and postponed. And finally, while lesser malefactors were being cited, prosecuted, fined, and exposed in government print daily, Swamp Root, always immune, brought itself by slow degrees to conform to the letter of the law, though never to its spirit. That immunizing vapor rising from the Swamp Root bottle, which had blinded the Post-Office and drugged the Department of Justice into somnolence, proved equally paralyzing to the Department of Agriculture, and the quack medicine finally came off unscathed.

THE LEADING INDUSTRY OF BINGHAMTON

Two Kilmers—father and son—Jonas M. and Willis Sharpe, manufacture and vend Swamp Root. It is to-day the leading industry of the lively and progressive little city where it is made, Binghamton, New York. The fortune derived from it is variously estimated at from ten to fifteen millions, all accumulated in the last twenty years. The Kilmer house is the most expensive in Binghamton. The two Kilmer buildings are the finest business blocks in the city, with one exception. The Kilmers' newspaper, the Binghamton *Press*, has the largest circulation in that part of the state. The People's Bank (Jonas Kilmer, president; Willis Sharpe Kilmer, vice president) is a strong and growing financial institution. Jonas Kilmer has been police commissioner of the city. Willis Kilmer has had congressional aspirations. In every phase of existence in Binghamton, except perhaps in the social phase, the Kilmers are powerful—and feared. All this wealth, all this power, all this influence rests on a foundation of pure fraud and knavery; has been built up by a business acumen as disreputable as that of the card sharp, as ruthless as that of the burglar who will kill, if need be, in order to make his haul.

For Swamp Root, "the great kidney remedy," is far more likely to kill than cure. Make no mistake about that, you unfortunates who are lured by its seductive advertising. Its curative power is nil. Its dangerous qualities are many; and they become potentially murderous in the very ailments to whose victims they hold forth the promise of rescue. There is an ugly passage of Stevenson's where that most diabolical character in modern fiction, the Master of Ballantrae, reaches forth a hand to a companion struggling in a morass, and, as the man yields to the proffered aid, stabs him in the back. Swamp Root is the Ballantrae of fraud medicines.

What is Swamp Root? Essentially it is alcohol, sugar, water, and flavoring matter, with a slight laxative principle. According to its label, it "contains the active medicinal properties of Swamp Root, Field Herbs, and Healing Balsams." But these ingredients are of such inconsiderable poteney in the small amount contained, that they are practically negligible. Alcohol is the chief drug constituent of the mixture, the alcoholic strength being 9 per cent., about that of champagne. The prescribed dose is one, two, or three teaspoonfuls *or more* (without limit), four times a day. That is, the patient who takes Swamp Root according to directions is getting a steady and considerable dosage of alcohol. And this, bear in mind, is prescribed for all kidney, bladder, and liver diseases. To a physician who has had large experience in this class of illness, I put the question:

"In what kidney diseases is alcohol given?"

"None, that I know," said he.

"In what bladder troubles?"

"Alcohol increases every form of bladder trouble."

"Is that the opinion of the profession in general?"

"Certainly. A physician who would give alcohol in kidney or bladder troubles is either a fool or a rascal."

"What about affections of the liver?"

A DOCTOR'S OPINION

The doctor laughed. "Caused by excessive use of alcohol, many of them. Cirrhosis of the liver, for instance, is commonly known as gin-drinkers' liver.' To prescribe alcohol for that would be like trying to put out a fire with kerosene."

I stated the alcohol content of Swamp Root and the prescribed dosage. "What would be the result," I asked, "of that treatment in Bright's disease?"

"It would kill the patient before his time."

Swamp Root is specially recommended for Bright's disease.

The principal solid in Swamp Root is sugar. It constitutes about one-third of the medicine. Now, there are certain forms of diabetic trouble in which sugar is absolutely prohibited by the consensus of all schools of medicine. Stating to my doctor the percentage of sugar in Swamp Root, I asked him what would be the effect of the prescribed dosage on a case of diabetes mellitus.

"Malnutrition would follow, and the patient would waste away and die," was the answer.

Swamp Root is on record as promising to cure diabetes.

To sum up: While there is nothing in Swamp Root which will cure the patient of any of the diseases specified in its promises, there are at least two main ingredients which will, in afflictions for which the nostrum is prescribed, give the sufferer a helping hand toward the grave.

Under the former interpretation of the law, forbidding false representations on the label, Swamp Root dropped from its carton the legend: "Kidney, Liver, and Bladder Cure." The claim of cure was untrue, and the Kilmers, knowing it to untrue, did not dare face the issue. Had they labeled their mixture "Kidney, Liver, and Bladder Poison," they might have preserved the label unchanged.

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In the grand Parade of Confession which the Food and Drugs Law set a-marching (before the United States Supreme Court pulled the law's teeth), Swamp Root was a conspicuous penitent. Applying the parallel column treatment, its admitted mendacity fairly smells to the skies:

OLD LABEL	NEW LABEL
DR. KILMER'S SWAMP ROOT, KIDNEY, LIVER AND BLADDER CURE	SWAMP ROOT, KIDNEY, LIVER AND BLADDER REMEDY
This great remedy cures all kidney, liver, bladder and uric-acid troubles, and disorders due to weak kidneys, such as catarrh of the bladder, gravel, rheumatism, lumbago, and Bright's disease, which is the worst form of kidney disease.	Numerous testimonials are to the effect that it has been used with benefit in cases which have been diagnosed as acute and chronic kidney, liver, bladder, urinary disorders, pain in back, joints, bones and rheumatism and Bright's disease.

Was ever change of claim more significant! The revised label sedulously refrains from any misstatement of fact. Incidentally, and by omission, it admits the lies which the old label carried, *and which the Swamp Root advertising is still, in part, carrying.* Here are the falsities which the Kilmers mentioned on their labels as long as they dared; and abandoned only when it appeared that not even their phenomenal pull could save them from at length having to defend the indefensible in court.

THE LIES

That Swamp root is a cure.
That it cures all kidney, liver, bladder, and uric acid troubles.
That it cures disorders due to weak kidneys.
That it cures catarrh of the bladder.
That it cures gravel.
That it cures rheumatism.
That it cures lumbago.
That it cures Bright's disease.

In its exploitation Swamp Root is purely fraudulent. There is practically nothing about it that isn't a fake. It possesses that rounded completeness, that realization of every opportunity for knavery, which suggests a truly artistic instinct joyously bent on fulfilling itself.

One of Swamp Root's most insistent assets is the mild, whisker-fringed face of Dr. S. Andral Kilmer. This appears not only in the nostrum's literature but also upon the carton in which the bottle is sold. The implication is that Dr. Kilmer, "the eminent kidney and bladder specialist," is the guiding spirit of the Swamp Root establishment.

In his sworn guarantee, Jonas M. Kilmer, the senior quack of the concern, says:

Swamp Root was discovered through scientific research and study by Dr. Kilmer, who graduated with honors and is now actively engaged in the practice of his profession, which calling he has successfully followed for many years.

The incorporated name of the Swamp Root concern is Dr. Kilmer & Co. Prospective patrons naturally suppose that the Dr. Kilmer who "discovered" Swamp Root is still "engaged in the practice of his profession" on behalf of the Swamp Root firm. It is all a hollow sham. There is no more any Dr. Kilmer in Swamp Root than there is any Lydia E. Pinkham in the Pinkham fake-factory.

Unlike Lydia E. Pinkham, however, who is long dead, Dr. S. Andral Kilmer is alive; but he has not for many years had the slightest connection with Swamp Root or any of its affairs. Very much alive, the old man is and has now two suits pending against the other Kilmers, one of them based on the opening of his mail by the Swamp Root employees. In his complaint Dr. S. Andral Kilmer swears that:

"Defendant [Dr. Kilmer & Co.] holds out and represents to the public that plaintiff is the duly licensed, qualified and acting physician in charge of the medical department of said defendant; that it represents, holds out, and pretends to give medical advice and prescribe medicines for disease which it pretends to diagnose."

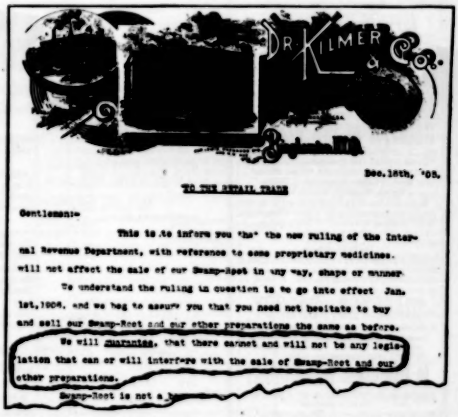
The Swamp Root Kilmers admit using the name of Dr. Kilmer, the title Dr. and the affix M.D., and they make no pretense of any right to do so, other than that, years ago, they had "license and authority from the plaintiff." Not a word of excuse for, or palliation of, the fraud perpetrated upon the public.

Now comes a darker chapter. In its circulars Swamp Root carries this message to prospective patients:

HOW TO FIND OUT

Fill a bottle or common glass with urine and let it stand for twenty-four hours; a sediment or settling usually indicates an unhealthy condition of the kidneys.

It usually indicates nothing of the sort. All urine deposits a sediment after standing twenty-four hours. Yet the Kilmers deliberately circulate this falsehood in millions of homes in this country, endeavoring to frighten sound and well people into believing themselves endangered, in order to lure into the toils the readily impressionable. And the damnable feature of the matter is that it is actually possible to scare a certain type of person into becoming ill. Hence we see Swamp Root in another phase of devil-work; not only preying on the sick, but even striving to inspire disease from which to wring blood-money.


DR. KILMER & CO.

Dec. 18th, '05.

TO THE RETAIL TRADE

Gentlemen-

This is to inform you that the new ruling of the Internal Revenue Department, with reference to some proprietary medicines, will not affect the sale of our Swamp-Root in any way, shape or manner.

To understand the ruling in question is to go into effect Jan. 1st, 1906, and we beg to assure you that you need not hesitate to buy and sell our Swamp-Root and our other preparations the same as before.

We will guarantee, that there cannot and will not be any legislation that can or will interfere with the sale of Swamp-Root and our other preparations.

Swamp-Root is not a

Fig. 1.—When the Swamp Root case was being juggled in the Department of Agriculture the attorney for the Kilmers is reported as stating that the case would never go to court. It is easy to prophesy when one has inside information! Here is a photographic facsimile of a letter sent out in 1905 by the Swamp Root people notifying retailers that Dr. Kilmer & Co. "will guarantee that there cannot and will not be any legislation that can and will interfere with the sale of Swamp Root." (Illustration and legend not in *Collier's* article, but provided by THE JOURNAL.)

At one time the Swamp Root quacks pursued this method even further, and this it was which brought them their first conflict with and triumph over the law of the land. Analysis of urine is the accepted method of determining kidney disease. Some years ago the Kilmers, with their keen instinct for pseudo-scientific pretense, offered to make urine analyses to diagnose cases by that procedure, and to prescribe the proper remedy. The specious offer came to the notice of a certain post office inspector. From different towns he mailed samples for analysis to the Swamp Root "Laboratories." Some were weak tea. Some were horse urine.

On all of these he got an "analysis" announcing a dangerous condition of the kidneys and an earnest recommendation to take Swamp Root and be saved!

Not long after, the inspector went to Binghamton and presented himself, with his credentials, at the Swamp Root build-

ing. He was received by the general manager, who asked what he wanted to see.

"Everything," said the post office man.

They went through the building without the inspector observing anything in the nature of analytical work.

"Where's your laboratory?" he inquired.

"Laboratory?" repeated the manager, looking puzzled. "You mean where we compound our medicines?"

"No. Where you make your analyses."

"Oh, that!" He led the visitor to a small room on an upper floor in which a number of employees were handling "form" letters, and pointed out a young girl of apparently 18 or 19 years of age as being in charge of the analytical work. This was a Miss Maillette. Miss Maillette is now the society reporter of the Binghamton *Press*, the Kilmers' newspaper. She is not a qualified chemist and is utterly incompetent to make proper urine analyses. Rigid questioning by the inspector failed to elicit any satisfactory information as to the processes by which the analytical work was carried on. The inspector went away and recommended the issuance of a fraud order. The fraud order has never been issued.

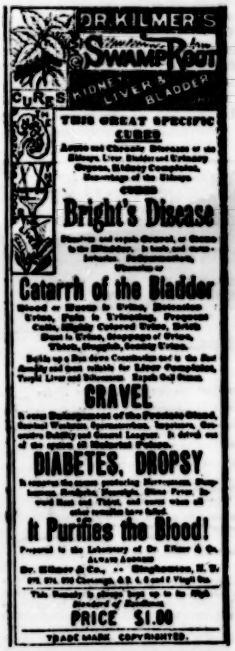


Fig. 2.—Photographic reproduction (reduced) of the old Swamp Root carton. Practically every line contains a falsehood. Believing that the Food and Drugs Act prohibited such lies, Kilmer & Co. modified the carton label so as to prevaricate by inference rather than directly. Subsequent developments showed that they need not have done this, for the Supreme Court decided that the Food and Drugs Act does not prohibit such falsehoods. AS THE LAW IS NOW INTERPRETED BY THE SUPREME COURT OF THE UNITED STATES THIS OLD LYING LABEL WOULD STILL BE PERMISSIBLE. (Illustration and legend not in *Collier's* article, but provided by THE JOURNAL.)

SWAMP ROOT'S ENCOUNTERS WITH THE LAW

Not only did the official recommend the stoppage of the Swamp Root mail, but he also laid the evidence in the case before United States District Attorney George Curtiss as basis for a criminal prosecution. Mr. Curtiss at this time expressed openly and in vivid terms his intention of making things hot for Swamp Root and the Kilmers and his opinion that he had the proper ammunition. The papers were sent to Washington, however, not with a recommendation to prosecute, but with a note advising against prosecution. There they still lie; mere invalid, outlawed wisps of paper, of interest only as witnesses to the impotency of the law as against a powerful fraud like Swamp Root.

Why did the United States district attorney so suddenly alter the opinion which he had expressed to his friends? It is the belief of those "on the inside" in Binghamton that the answer is to be found in a sudden change of front on the part of the Binghamton *Press*, the Swamp Root newspaper. At the time of the postoffice inspector's investigation the *Press* was conducting a lively fight against the old-line Republican machine of which George W. Dunn was leader, with the United States district attorney as his lieutenant. Dunn and the Kilmers "got together." The cases against Swamp Root, both in criminal and fraud order proceedings, lapsed. Shortly after the Binghamton *Press* ceased its attacks on the Republican machine, discharged its managing editor, a determined opponent of George W. Dunn, and straightway became "good."

When I inquired of George B. Curtiss, recently, why the Kilmers had been let off, he said that the case against them was not strong enough to warrant criminal prosecution. Not strong enough! Here was a concern using the United States mails in a device to obtain money under false pretenses, with at least three fraudulent phases:

First—Purporting to report findings from analysis of urine which was not made.

Second—Diagnosing and prescribing for disease without a license to practice medicine.

Third—Selling Swamp Root to persons entirely free of kidney disease, on false representation that they were suffering from such disease.

All these points were provable. It was also provable that there was no proper analytical laboratory or qualified analytical chemist in the Swamp Root concern. Nevertheless, when the Binghamton *Press* "swung," the case dissolved. Great is the power of the "Press."

Swamp Root's next and latest encounter was with the Bureau of Chemistry and the Board of Food and Drug Inspection. On these governmental agencies the enforcement of the Pure Food and Drugs regulations devolves. Prosecution for the misbranding of drugs usually follows complaint with reasonable celerity. Not so with this law-paralyzing nostrum. On February 17, 1909, the chief inspector of the Bureau of Chemistry recommended prosecution of Swamp Root for misbranding, on the ground that the name itself is not justified by the nature of the nostrum and that various claims, made on the label, of preventive and curative virtues were false. On May 7 Dr. Wiley recommended that Dr. Kilmer & Co. be cited for a hearing before the Board of Food and Drug Inspection, consisting of himself, George P. McCabe, the solicitor for the board, and F. L. Dunlap. At this time there was developing, with Secretary of Agriculture Wilson's aid, that scandalous plot to nullify the pure food law and to hamper and eventually discredit and discharge Dr. Wiley, which Congressman Moss' committee has recently exposed and frustrated. McCabe, the self-confessed falsifier of a government record, was Secretary Wilson's agent in the board, and Dunlap was McCabe's echo. Against those two Dr. Wiley was powerless. The hearing of the board on the Swamp Root case was set for June 9. Then began the long series of procrastinations. The case was set over to August 9. Meantime, Warwick M. Hough, the legal prop and bulwark of the patent medicine fakers and the food adulterators, had been brought into the case as counsel for Swamp Root. There was an immediate postponement to September 3. Then, by Hough's request, the hearing was set over to October 1 and again to October 15, at which time it was actually opened and conducted for part of one day. At this point Mr. Hough got a four weeks' adjournment to November 12, when the hearing was closed. Dr. Wiley and Dunlap then formally recommended prosecution. But McCabe, the obstructionist, recommended "temporary abeyance," and the supple Dunlap turned a back somersault in order to concur. (This was but one of a hundred cases in which he did the same thing.) However, it appears that a brief delay was all that McCabe was then playing for, since on December 14 he recommended prosecution, and, Dunlap concurring, the case was turned over to McCabe on January 8, 1910, for legal preparation.

THE DELAYS OF McCABE

Did he prepare it? Not at all. Instead, he presented a revised label, which the Swamp Root people, taking advantage of the blocking of the wheels of justice, had leisurely fixed up. This was on March 26. On April 4 McCabe treated himself to a little joke. He issued a memorandum in which he ascribed the long delay to the drug division of the Bureau of Chemistry.

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To this the drug division replied, with equal heat and justice, that its material had been ready at all times and that the main delay was of the solicitor's own contriving. Then Dr. Wiley urged action on the board. Again the case was referred to the solicitor, who thereupon proceeded—to prosecute! Certainly not! To accord the Swamp Root people another hearing! They had already had their full day in court, and more. They had revised their label, which still remained fraudulent. And yet McCabe gave them another chance. This was set for May 10, 1910, a year and three months after the first move in the case. At this session Lawyer Hough presented a still further revised label which is a model of deceptiveness and fraudulent intent, but which, nevertheless, does not lie specifically enough to bring it within the scope of the law. Finally the matter was closed on July 14, 1910, by the government accepting the revised label. The Swamp Root fraud had, by a series of special favors and privileged delays, beaten the law in its very stronghold, and victoriously reestablished its immunity, not only from punishment for obvious lawbreaking, but also from the more greatly feared process of facing a court ordeal which would have officially proclaimed its fraudulency.

There remains to be written one more chapter of this ugly record: the relations of Swamp Root to the newspaper press. So far as I know, Swamp Root is the only patent medicine whose proprietors directly own a newspaper.

They started the Binghamton *Press*, a lively, able, but unprincipled evening publication, because they were unable to control to their own purposes the press of the locality. Let me state, briefly, the attitude of the patent medicine business toward the newspapers in general. It is this:

"We are your chief support. We pay you more money for advertising than any other form of industry. Therefore you owe us special consideration. We expect you to give us special business favors; to fight our battles in the legislatures; to publish our tainted news and canned editorials; and to suppress such news about patent medicines as might injure our business."

DR. KILMER'S
SWAMP-ROOT
Kidney, Liver & Bladder
CURE
DIRECTIONS
MAY TAKE one, two or three teaspoonfuls before or after meals and at bedtime.
Children less according to age.
May commence with small doses and increase to full dose or more, as the case would seem to require.
This great remedy corrects all kidney, liver, bladder and Uric Acid troubles and disorders due to weak kidneys, such as catarrh of the bladder, gravel, rheumatism, lumbago and Bright's Disease, which is the worst form of kidney disease.
It is pleasant to take.
PREPARED ONLY BY
DR. KILMER & CO.,
BINGHAMTON, N. Y.
Sold by all Druggists.
DR. KILMER'S
SWAMP-ROOT
Kidney, Liver & Bladder
REMEDY
DIRECTIONS
MAY TAKE one, two or three teaspoonfuls before or after meals and at bedtime.
Children less according to age.
May commence with small doses and increase to full dose or more, as the case would seem to require.
This great remedy corrects all kidney, liver, bladder and Uric Acid troubles and disorders due to weak kidneys, such as catarrh of the bladder, gravel, rheumatism, lumbago and Bright's Disease, which is the worst form of kidney disease.
It is pleasant to take.
PREPARED ONLY BY
DR. KILMER & CO.,
BINGHAMTON, N. Y.
Sold by all Druggists.
DR. KILMER'S
SWAMP-ROOT
Kidney, Liver & Bladder
REMEDY
DIRECTIONS
MAY TAKE one, two or three teaspoonfuls before or after meals and at bedtime.
Children less according to age.
May commence with small doses and increase to full dose or more, as the case would seem to require.
This great remedy corrects all kidney, liver, bladder and Uric Acid troubles and disorders due to weak kidneys, such as catarrh of the bladder, gravel, rheumatism, lumbago and Bright's Disease, which is the worst form of kidney disease. It is pleasant to take.
PREPARED ONLY BY
DR. KILMER & CO.,
BINGHAMTON, N. Y.
Sold by all Druggists.

FIG. 3.—Photographic reproduction of three labels from the Swamp Root fraud in various stages of evolution from the "lie direct" to the "lie with circumstance." (Illustration and legend not in *Collier's* article, but provided by THE JOURNAL).

THE RED CLAUSE CONTRACT

In this spirit was devised by Frank Cheney, president of the Patent Medicine Trust (the Proprietary Association of America), the noted "red clause contract" providing that the patent medicine advertiser might withdraw his advertising from a newspaper if any legislation inimical to patent medicines was passed by the state legislature. Mr. Cheney frankly expressed the opinion that his scheme just about compelled the newspapers to fight the patent medicine men's battles for them.

In justice to the newspapers it should be said that he underrated their independence; that a large majority of the standard publications refused to bow down to this form of tyranny; and that the "red clause" has lost most, if not all, of its potency. Now, Willis Sharpe Kilmer is an enthusiastic believer in the bludgeon and blackjack methods of Mr. Cheney.

It was the younger Kilmer who, when a patent medicine labeling bill was up in the Massachusetts legislature, sent the following telegram broadcast to the newspapers carrying Swamp Root advertising:

BINGHAMTON, N. Y., March 10, 1905.

SPY, Taunton.

House bill eight hundred and twenty-nine discriminating against proprietary medicines passed lower house. Up in senate Monday. Quick work necessary. Use your influence.

WILLIS SHARPE KILMER, Adv. Agt.

Having imbibed the pleasing theory that the press is the slave of the advertiser, Willis Kilmer, with the aid of his father, proceeded to give it a local and extreme application in Binghamton, with far-reaching results. And because this case is so typical of patent medicine tyranny, and because the Kilmers pushed it to the extreme of seeking immunity from personal criticism and comment, I am compelled here to touch briefly on certain unpleasant episodes in the career of Willis Sharpe Kilmer.

Before the *Press* was founded, the evening paper of Binghamton was the *Herald*, then owned by Guy F. Beardsley. I am doing Mr. Beardsley no injustice in stating that he has never yet seriously strained himself by undue endeavors to run away from a fight. As far back as 1894 Mr. Beardsley's *Herald* was criticizing George E. Green, then mayor of Binghamton, and afterward mixed up in the postoffice graft scandals. Mr. Green was a friend of the Kilmers. One day a copy of the *Herald* with a blue-penciled circle around an editorial attacking Green, was sent to Mr. Beardsley by the Kilmers with a note on the margin:

"If you don't quit this we shall stop advertising with you."

The *Herald* did not quit. The Swamp Root advertising was withdrawn. Six months later it was put back, the Kilmers perhaps deeming that they had sufficiently punished the recalcitrant editor. Then, one day, Willis Sharpe Kilmer, driving his tandem through one of the principal streets, became incensed at a bicyclist who failed to give him what he considered due space when he shouted (the man was quite deaf and couldn't hear him), so he horsewhipped the offender. The bicyclist sued and the *Herald* printed the complaint in the case. Down came Willis Sharpe Kilmer in great excitement to see Mr. Beardsley, demanding to know why the article had been published.

"Because," said the editor, "it was and is a matter of court procedure."

"Why didn't you come to me? I could have fixed that all right."

"What do you mean?"

"I mean that I would have made it right with you. I would have made it worth something to you to keep it out."

So much for Willis Kilmer's opinion of the press of his city. On finding that he was in error and that his bribe would not have been accepted in any case, he went out in a rage. Again the Swamp Root advertising was withdrawn. Incidentally, the assaulted bicyclist won his case and Kilmer was mulcted in considerable damages.

For a long time Swamp Root withheld its exploited knaveries from the pages of the *Herald*. When the familiar "copy" did return, no explanation accompanied it. None was needed. Willis Kilmer's wife, to whose family the Kilmers owe most of their success, was about to sue him for divorce, and the quacks were desirous of keeping the matter out of the papers. They were ready to fight the case but they weren't willing to face the publicity, for the evidence was of a most sensational and unsavory nature. When the case was called, the *Herald*, declining to regard the Swamp Root advertising as a bribe for the suppression of news, printed an account of the proceedings with the list of fourteen corespondents. Instantly Willis Sharpe Kilmer abandoned his defense, paid his wife $25,000, and allowed her to get a divorce in another state. At the same time he made statements viciously reflecting on her character, which were wholly baseless. His behavior in this matter sufficiently characterizes the man; any comment on it would be superfluous. This time the Swamp Root support was not taken from the *Herald* because the Kilmers wanted a statement of their side of the case published in its columns, which was done.

A year later the *Herald* printed a rather feeble little joke about patent-medicine advertising. At this Jonas Kilmer took great umbrage, denounced Mr. Beardsley, and again ordered the Swamp Root advertising discontinued. Later still he brought suit against the *Herald* for libel, in connection with a charge of arson made against his nephew. In vain did the *Herald* strive to get into court on this suit; the Kilmers got postponement after postponement, meantime trying to retain all the available lawyers, including Mr. Beardsley's own counsel. Finally the suit was dropped, but not before the judge, from the bench, made a remarkable statement which serves to show what the Kilmers' enemies have to fear from the Kilmer millions. The *Herald* as *defendant* had asked for an extra allowance of costs on the ground that they had been put to great expense, and the court, in granting this, said:

"If the rule of damages to the defendant was not applied, men of wealth might absolutely crush the press in every community if they started out to do so. . . . It looks as if the Kilmers employed every attorney in the city, and with their wealth and position tried to make the *Herald* go out of town to find a lawyer. Their ambition seemed to be to crush the defendant at all hazards."

Eventually the Kilmers started the Binghamton *Press*, Willis Kilmer stating with great frankness that he was after the *Herald*.

"That damned sheet won't last long after I get after it," he announced.

THE SITUATION TO-DAY

However, the *Herald* is still alive, though Mr. Beardsley no longer owns it, and it is getting along, though without the Swamp Root advertising. For a time it had to get along without other patent-medicine advertising as well, for there developed, in the course of the Kilmer fight, an interesting instance of how the quacks combine to bludgeon any paper exhibiting the slightest signs of independence or revolt. On the *Herald's* editorial page had been printed an obviously jocular patent-medicine testimonial, stating that a man in California, who had taken ten bottles of Dr. Jiggem's Kidney Invigorator and who had died of another ailment, still maintained the vitality of his kidneys to such an extent that the undertaker had to kill them with a club before the man could be buried. Shortly after the publication of this, the Lydia E. Pinkham advertising was withdrawn. When the *Herald* asked why, the famous dead lady replied (per living secretary) that the paper was attacking patent medicines, and *cited the Kilmers*. Another quack concern, the Dr. Pierce Medical Company of Buffalo, insisted on stopping its advertising at about the same time, and did so, although compelled to pay the full amount of its contract. Yet the Proprietary Association of America indignantly denies that there exists any conspiracy to muzzle the free press!

Of late the sales of Swamp Root have somewhat decreased in this country. Abroad it is flourishing, particularly in England, where, in the absence of any sufficient legal restraint, it still blazons on its bottles the full and flagrant lies which it perforce abandoned in this country. Signs are not wanting that, though the fraud is above the law of this land, it is not exempt from the danger of popular enlightenment; and that the public is beginning to learn about it. For the benefit of those who may be tempted by its specious advertising, I will state once more as definitely as possible—and if I am wrong in any one of these statements, both *Collier's* and myself are liable for libel—three facts to be borne in mind:

THREE FACTS

That Swamp Root will not and cannot cure kidney, liver, or bladder disease;

That, used in such diseases, it will often be harmful; and

That it may sometimes even kill.

The way to end Swamp Root's career of fraud is to spread understanding of what it really is: a compound of false promises and harmful drugs, protected by political pull, and backed up by a conscienceless newspaper; in all the realm of medical knavery, the most dangerous and law-destroying combination extant—the copartnership of quackery, blood-money, and fraud-nurtured journalism.

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DESCRIPTION OF CHINOSOL MODIFIED

The Council has modified the statements regarding the actions, uses and dosage of chinosol to read as follows:

Action and Uses.—So far as experimental evidence and experience goes, chinosol is non-toxic. It is a powerful antiseptic, somewhat stronger in this respect than mercuric chlorid and considerably stronger than phenol. It has been found to exert an antiseptic action in solutions containing 1 part to 10,000. It is a feeble germicide, being weaker than phenol and much weaker than mercuric chlorid. It is incompatible with alkaline substances (soap) and with salts of mercury and iron. Chinosol does not coagulate albumin or injure the mucous membranes or tissues. The sensitiveness of patients to its solution varies considerably. In some it produces a pronounced stinging when applied to mucous membranes even in dilute solutions (1 to 2,000) but it is claimed not to cause harmful irritation in any strength. It is claimed to possess marked analgesic power and to be an efficient deodorant.

Dosage.—For internal use 0.3 gm. (5 grains) three times daily. As an antiseptic the average strength of solution used is 1 to 1,000; as a nasal spray or douche the strength used is 1 to 3,000, as a gargle 1 to 2,000, and as an eye-wash 1 to 4,000, gradually increased in each case according to the tolerance of the patient up to 1 to 500. As a vaginal douche the initial strength used is 1 to 1,000 increased to 1 to 100 if necessary.

This appears in the new edition of New and Nonofficial Remedies, 1912, page 56, just from the press.

Correspondence

The Caffein Investigations: A Further Reply

To the Editor:—My attention has been called to a letter from Dr. Wiley in THE JOURNAL (May 11, p. 1463), with reference to my recent experiments with caffein alkaloid. I desire to reply to some of the remarks and insinuations contained in that letter, and to thank you for your expression of confidence in the honesty of my work. The irrelevant parts of Dr. Wiley's letter, concerning my proper official title, my correct business address, etc., need no comment, since their connection with the influence of caffein is not clear. Moreover all

of these facts are correctly stated on my monograph (The Influence of Caffein on Mental and Motor Efficiency, *Arch. Psychol.*, Columbia University, No. 22, April, 1912), which appeared in April, some four weeks before the appearance of Dr. Wiley's letter.

Moreover, in the preface of that monograph, a copy of which has been for some time in Dr. Wiley's possession, appears the following statement: "An investigation was made possible by an appropriation by the Coca-Cola Company sufficient to cover all the expenses of the experiments." I agree with you most thoroughly that "it is also important that the readers of the results of scientific investigations should know why and under what auspices they were undertaken." My preface of a page and a half is entirely taken up with a full statement of the circumstances under which the investigation was made, and to a frank discussion of the possibilities of bias in such researches, the scientific technic for avoiding such possibilities of bias, etc. Since these facts are the first things stated in my monograph of 167 pages, I do not feel that Dr. Wiley is justified in stating that the facts were "discovered" by him, nor do I relish the insinuation that any attempt was made to conceal these facts. I trust you will be kind enough to publish this letter in order that those of your readers who may chance to be interested in my researches may be able to get their knowledge of them from the original sources.

If a further suggestion is permissible, I should like to correct your statement that my results are in disagreement with those of other investigators. No reliably controlled experiments in the literature to which I have had access (some twenty or more investigations are summarized in my chapter on "Previous Investigations") on the influence of caffein on mental and motor efficiency present results in any way different from the picture of caffein action given in my monograph.

H. L. HOLLINGWORTH, New York.

Pellagra in New England

To the Editor:—In reporting his interesting case of pellagra Dr. Davenport White in THE JOURNAL (April 27, 1912, p. 1279) says it is "the second in New England."

To aid in keeping the record straight I beg to call attention to other cases of pellagra in that section of the country, of which I happen to have memoranda.

In an article on the prevalence of pellagra, read by me at the sixty-sixth annual meeting of the American Medico-Psychological Association in Washington, May, 1910, three cases of the malady are noted from Massachusetts and one from Vermont. (The Prevalence of Pellagra, *Jour. South Carolina Med. Assn.*, September, 1910; *Am. Jour. Insanity*, January, 1911; *Proc. Am. Med.-Psych. Assn.*, 1910, and Senate Document No. 706, Sixty-First Congress, third session, Washington, 1911.)

In 1864, Dr. Tyler of the McLean Asylum, then at Somerville, Mass., reported a case that he had under observation for five or six years. This is one of the two earliest recorded cases of the disease, so far discovered in this country. As recorded by Dr. White, Dr. Clara P. Fitzgerald of Worcester reported in the *Journal of Cutaneous Diseases*, in 1910, a case strikingly typical of pellagra occurring in Massachusetts. It is probably this case that is noted in the report of the Massachusetts State Board of Health for 1910, p. 564. In the same year a case of pellagra was under observation at the Massachusetts General Hospital, Boston. In 1911, I was informed by an asylum officer in Massachusetts that cases of pellagra had been discovered in several of the state hospitals of that commonwealth.

Dr. H. F. Powers, while intern at the Fanny Allen Hospital, Burlington, Vt., is said to have diagnosed the first recognized case of pellagra in that state in April, 1910. In July of the same year a fatal case was reported from Bridgeport. At the quarterly meeting of the Rutland County (Vt.) Medical and Surgical Society, held April 9, 1912, three cases of this "southern disease" were reported and discussed by Drs. Caverly, Eddy and Martin. In July, 1910, it was announced that pellagra had claimed its first victim at the state almshouse at Cranston, R. I. Subsequently other cases are said to have been observed in the Rhode Island charitable institutions. In December, 1910, Dr. G. T. Swarts, secretary of the State Board of Health of Rhode Island, reported to Dr. C. F. Williams of the South Carolina State Board of Health these statistics on seven cases of pellagra from the charitable institutions of his state: Five patients had been in the hospital for insane and two in the almshouse; three were men and four were women. Two men and two women had died.

At the meeting of the American Medico-Psychological Association, held in Denver in June, 1911, a case of pellagra was reported from one of the Maine asylums by Dr. H. W. Miller. This case was also reported, I believe, before the Maine Medical Association. Dr. White's report of a case of pellagra from Connecticut leaves New Hampshire the only New England state from which the disease has either not been reported or at least no records of it from that state have come to my attention. Yet we are learning that it is more widely spread than has generally been supposed. The disease has now been reported from thirty-nine states, including all sections of the country, as well as from Porto Rico, the Canal Zone and the Philippine Islands. It is not likely, nor is it claimed, that the pellagra records as given above are complete, since they are the notes of an isolated student of the disease. In the matter of priority in discovering and reporting pellagra from various localities, many claims have been made and much enthusiasm expended, without sufficient investigation of the records. And in conclusion, it must be admitted that pellagra statistics, like those from Italy, still "leave much to be desired in point of accuracy."

J. W. BABCOCK, M.D., State Hospital, Columbia, S. C.

Petition for a Section on Physical Therapeutics

To the Editor:—Referring to the petition now forming in the hands of Dr. G. Betton Massey and myself asking for the creation of a new Section on Physical Therapeutics, I wish to say that we have received several letters stating that the writers would be glad to see the section formed, but did not sign the petition, as they are not now members of the American Medical Association, but that they would join the American Medical Association especially to become identified with this new section, if created. We consider each such letter to give our petition additional weight and we will thank our friends to send all such letters obtainable to Dr. G. Betton Massey, 1831 Chestnut Street, Philadelphia, or Dr. Gustavus Werber, 1353 Q Street, N.-W., Washington, D. C.

GUSTAVUS WERBER.

Relation of Albuminuria to Indicanuria

To the Editor:—I note in THE JOURNAL (March 2, 1912, p. 633), Dr. Israel Bram's comments on the paucity of comparative data on the frequency of occurrence of albumin and indican in the urine.

Being curious to know how my results compare with those given by Dr. Bram, I have tabulated the results of 145 consecutive tests showing albumin or indican as taken from the records of this laboratory. The following are the results:

Albumin.	Indican.	No.
Considerable	None	42
Considerable	Traces	1
Considerable	Considerable	1
Traces	Considerable	4
Traces	Traces	11
Traces	None	69
None	Considerable	5
None	Traces	12
Total number of examinations		145

	No.	Per Cent.
Albumin but no indican	111	76.55
Albumin and indican	17	11.72
Indican but no albumin	17	11.72
Total with albumin	128	88.27
Total with indican	34	23.44

The above figures show that two out of every fifteen containing albumin also contain indican while, on the other hand, we find albumin present as often as we find it absent in urine showing indican.

The tests employed were the layer-heating method with dilute acetic acid and the Roberts layer test (using a solution of nitric acid and magnesium sulphate) for the albumin. For indican the Obermayer reagent (hydrochloric acid with ferric chlorid) was employed by taking 5 c.c. each of urine and of the reagent, and 2 c.c. of chloroform to extract the colored product. When found, thiosulphate solution was employed to remove any possible iodin, etc., present.

HENRY J. GOECKEL, PH.G., PHAR.D., New York.

Want Less Duty on Physicians' Apparatus

To the Editor:—In THE JOURNAL for May 18, p. 1534, you refer to the resolution which I introduced before the House of Delegates of the Ohio State Medical Association, and which refers to tariff reduction on chemical glassware, also on optical instruments, and then further state that it implies an amendment to the customs rule "whereby a physician may import optical instruments," when it should state that we seek "an amendment to the customs rules such as will permit a physician to bring into this country surgical instruments, as tools of his trade." It was also implied that surgical instruments in this case referred to all instruments used either by surgeons or physicians. This covers a much wider field than the reference to optical instruments. The preambles and resolutions were:

WHEREAS, There is no one in the United States to-day manufacturing chemical glassware, although there is much demand for it in commercial as well as in charity and scientific work, in the latter two of which our profession lead, and

WHEREAS, The optical instruments, especially microscopes and instruments of optical precision, produced in this country are undoubtedly inferior to those produced in foreign countries, although the price is just a little lower than that asked for the foreign article plus duty, and many instruments are not produced at all in this country, and

WHEREAS, As many of our surgical instruments, which are really our tools of trade, are made in foreign countries and then imported by instrument houses into this country at a very small duty and then polished by these instrument houses, whereas we are charged 60 per cent. to bring in the same instruments, except that they are already polished; therefore be it

Resolved, By the House of Delegates of the Ohio State Medical Association, that our state delegates to the American Medical Association for its next annual session be hereby instructed to prepare resolutions bearing on these propositions, urging the proper committee of the American Medical Association to take the necessary steps looking to the accomplishment of the following:

First, a reduction or abolition of the tariff on chemical glassware.

Second, a reduction on optical instruments made in part or in whole abroad.

Third, such change in the customs rulings as will permit a physician to bring into this country at least a reasonable amount of surgical instruments, as tools of his trade

Under the present ruling, a physician can bring in only such instruments as he uses during the voyage. In Ohio we feel that the physician has just as good a right to bring into this country, free of duty, such instruments and appliances as he uses in his trade, as any one engaged in any other work. We believe that every reasonable-minded person will agree with this interpretation, and that if the attention of the Treasury Department is called to the injustice of the present ruling, it will be remedied.

CHARLES W. MOOTS, Toledo, O.

Warning Against Indiscriminate Use of the Bismuth Paste in Acute Suppurations

To the Editor:—In THE JOURNAL (May 4, p. 1339) Dr. Bell reports very satisfactory results in treating acute and subacute suppurative conditions with bismuth paste. I note that in two of his cases symptoms of bismuth absorption occurred, and while in his cases the progress of the poisoning was checked by proper treatment, others employing this treatment in similar cases might be less fortunate and thus encounter serious complications.

I feel prompted, therefore, to issue a warning against the use of the bismuth paste as a substitute for the drainage-tube shortly after abdominal operations. In such acute cases our old methods of drainage are entirely satisfactory, and bismuth paste should not be injected unless the suppuration continues for an unusually long period. Under such conditions its injection is permissible, as by that time the adhesions have become sufficiently firm to prevent their rupture through undue pressure caused by the injection of the paste. In fresh wounds the surfaces are apt to absorb the bismuth and lead to bismuth poisoning. This occurred in two of the cases Dr. Bell reports, but fortunately the condition was recognized early enough to prevent poisonous effect.

This danger is not present in cases of fecal fistulas, the paste having proved very efficient in the treatment of such cases in my hands, as well as in the hands of others, many successful cases having been reported in the literature.

I have not yet encountered any formation of bismuth stones, although this might be possible through the absorption of the petrolatum out of the paste, or through insufficient incorporation of the bismuth into the petrolatum.

In chronic ulcerations of the leg, application of the paste has proved satisfactory, but in more acute cases the condition was very much aggravated by such application. Dry bismuth should never be applied in burns. Several cases of bismuth intoxication resulting from this procedure have been reported by Kocher and others. EMIL G BECK, Chicago.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

LOW BLOOD-PRESSURE

To the Editor:—I frequently see articles on increased arterial tension, but have not seen anything on lessened arterial tension.

I have two young women, 25 years old, under advisement at present with a pressure of from 85 to 95 mm., hemoglobin by Talqvist 95 per cent. They both complain of constant lassitude, dizziness and shortness of breath on exertion. They faint easily, but have no cardiac or kidney lesions; uncinariasis and malaria are negative. The condition has been maintained for several years. I believe if I can increase the tension, they will improve.

Strychnin has failed in one and digitalis in the other. Have you any suggestion? G. H. EDWARDS, Orlando, Fla.

ANSWER.—Lowered blood-pressure has been noted in neurasthenia. It may be due to weakness of the heart action. It arises frequently from dilatation of the blood-vessels by the action of the vasomotors, especially when this affects the vessels of the splanchnic area. A careful investigation of all the conditions in the case should be made and the treatment should involve proper physical measures, such as massage, cold baths, etc. The following articles may be referred to:

Bishop, L. F.: Constitutional Low Arterial Tension in Children, THE JOURNAL, Nov. 24, 1906, p. 1734.

The Blood-Pressure in Renal Tuberculosis, THE JOURNAL, June 1, 1907, p. 1870.

Macnamara, E. D.: Blood-Pressure in Neurasthenic States and Effects of Treatment, *Lancet*, July 18, 1908; abstr. in THE JOURNAL, Aug. 15, 1908, p. 627.

Bishop, L. F.: Significance of Low Blood-Pressure in Arteriosclerosis, Arch. Diag., October, 1909.

Pearce, R. M., and Eisenberg, B. A.: Experimental Conditions of Low Blood-Pressure, *Arch. Int. Med.*, August, 1910; abstr. in THE JOURNAL, Sept. 3, 1910, p. 886.

Münzer, E.: Low Blood-Pressure from Various Causes, *Wien. klin. Wchnschr.*, Sept. 22, 1910; abstr. in THE JOURNAL, Oct. 29, 1910, p. 1603.

Edgecombe, W.: Low Blood-Pressure, *Practitioner*, April, 1911; abstr. in THE JOURNAL, April 29, 1911, p. 1290.

EXCESSIVELY LARGE FETUS

To the Editor:—I read with much interest the case of J. E. B. of Wisconsin in THE JOURNAL (May 11, p. 1464).

Aug. 3, 1910, I was called to attend Mrs. J. C., an American, aged 30. She weighed 450 pounds and was the mother of four living children. I found the patient in the first stage of labor; she had been in labor for about fifteen hours with very little progress. The child was of such abnormal size that it could not be born naturally. I sent for Drs. M. R. Faulkner and L. F. Hatch of Vineland, with whose assistance the patient was chloroformed, the child dismembered and the woman delivered. On weighing the parts of the dismembered body we were greatly surprised to find that the child weighing 25 pounds. The mother said that two years before she had had a still-born child which weighed 16½ pounds. The patient made a good recovery. CHARLES M. GRAY, Vineland, N. J.

JOURNAL Announcements, Knocks and Boosts, Books Received and changes in the Public Service will be found in the advertising section commencing on the second page following reading matter.

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Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF POST-GRADUATE WORK, CONTRACT PRACTICE, LEGISLATION, MEDICAL DEFENSE, AND OTHER MEDICOLEGAL AND ECONOMIC QUESTIONS OF INTEREST TO PHYSICIANS

THE CHURCH AND THE PHYSICIAN

A well-marked and welcome evidence of increasing public interest in health matters is found in the efforts of representative clergymen to work hand in hand with the medical profession for better health conditions. The needs and advantages of such cooperation are obvious. Mutual support and cooperation in this field are inevitable, since, as has been frequently pointed out of late, public health, under present-day conditions, is quite as much a sociologic as a medical and a scientific problem. It is most refreshing and encouraging to find broad-minded ministers recognizing this fact and instructing their people as to the real issues involved. Through the interest and courtesy of a correspondent, we present to the readers of THE JOURNAL a few paragraphs from a sermon, delivered on May 12, by Rev. William T. Fishburn, D.D., Pastor of the West Adams Presbyterian Church of Los Angeles. The text was Matthew 2:20, "They are dead that sought the young child's life." After speaking of the duty of modern society to safeguard the mother and child and discussing child labor, Dr. Fishburn said:

THE AWFUL AMERICAN MEDICAL TRUST

"Not all of the enemies that seek the young child's life are dead. The existing enemies of the young child are many. Human greed is not dead; evil suggestions that flaunt themselves before the young child are not dead; the allurements of intemperance, and gaming, and the social evil, are not dead. The infantile diseases are not dead; the diseases produced by bad food, bad milk, bad sanitation are not dead.

"But we are doing something in our period to make the young child safe. In no other direction is progress being made more rapidly than in the direction of wholesome sanitation. Never before have wise physicians labored so hard to protect the child, and the child's parents, from disease and death by preventive medication as they are laboring today.

"Never before have men of substance given so largely toward the founding and endowment of institutions for the study of preventive medication as they are giving to-day. Never before has the hope been as large as it is to-day that some of the childhood diseases are going to be abolished, that some of the unwholesome Herods of disease that slaughter children, not by fifties as this ancient Herod did, but by millions on millions, are about to disappear.

"One would imagine that such study by patient men of science would be universally applauded. But, do you know that there exists an organization whose purpose is to halt all of this scientific progress? This hostile organization is known as the League for Medical Freedom.

"It is a winsome title, and many good persons have given their sanction to this League for Medical Freedom without being aware of what they are sanctioning. They do not know that the League for Medical Freedom asks that the doors be thrown wide open, and that every quack and charlatan be given a yet larger 'freedom' to exploit his ignorance on a sick and suffering public.

"Every maker of quack nostrums, every manufacturer of patent medicines, every devotee of an inane cult, every promoter of fraud and humbug, is standing behind this league and giving strength to its uninstructed hands.

"And every practitioner who could not diagnosticate the mumps from the measles, who would not know a nerve from a tendon, a muscle from a cartilage, is singing first tenor or first bass in the chorus for medical freedom!

"Verily, sirs, the people need to be protected from themselves when they lift up their foolish voices in dispraise of progressive medication, and clamor to be put back again into the hands of the hoodoo doctor and the witch healer, who will rub a rabbit's foot on the place to make it well. Being familiar with the progress that the science of preventive medication is making in our world, I feel that I am exhibiting great self-restraint in saying these things about the League for Medical Freedom as gently and as calmly as I am saying them now."

POSTGRADUATE COURSE

Tenth Month—Second Weekly Meeting

UREMIA

ETIOLOGY

Occurrence in nephritis, obstruction of ureter, compression of renal vessels, cholera, etc.

THEORIES: (a) Retention or accumulation of exeretory products, gradual or rapid, character of poisons. Bouchard's views. (b) Traube's views, localized or general edema of brain.

SYMPTOMS

Distinguish between acute and chronic uremia. Cerebral symptoms, slight to extreme; headache, somnolence, stupor and coma, or acute delirium. Convulsions, character, onset, severity, course, duration. Amaurosis and deafness. Respiratory symptoms, dyspnea. Gastro-intestinal symptoms. Pulse, rate and tension; temperature, urine.

HEMATURIA

ETIOLOGY: Renal causes,[1] inflammations, infarction, calculi and pyelitis, tuberculosis, malignant disease, parasites. Traumatism.

AFFECTION OF URINARY TRACT: (a) Ureter, calculi, traumatism, (b) bladder, calculi, malignant tumors, acute cystitis, varicose veins, (c) urethra, gonorrhea, calculi, parasites, traumatism.

1. Progressive Medicine, December, 1907.

GENERAL DISEASES: Acute specific fevers, blood dyscrasiæ, chronic heart, lung or liver disease.

DIAGNOSIS: 1. Presence of blood; color, sediment, chemical tests (Heller's, guaiacum). Microscopic examination. Spectroscope. 2. Source of hemorrhage; mixture with urine, clot, molds, casts. Cystoscope, ureteral catheterization.

HEMOGLOBINURIA

TOXIC: (a) Poisons; phenol and pyrogallic acid, potassium chlorate, naphthol, phosphorus, carbon dioxid. (b) Poisonous fungi, muscarine. (c) Infectious diseases, scarlet fever, typhoid, malaria, syphilis, yellow fever, purpura. (d) Cold and exertion. (e) Burns, absorption of hemorrhagic effusion, transfused blood. (f) Epidemic hemoglobinuria in infants.

PAROXYSMAL:[2] Sex, age, cold, exhaustion. Association with Raynaud's disease. Pain, gastric disorders, jaundice. Urine; color, reaction, blood-tests. Microscopic examination. Methemoglobin.

Society Proceedings

COMING MEETINGS

AMERICAN MEDICAL ASSOCIATION, Atlantic City, N. J., June 4-7.

American Academy of Medicine, Atlantic City, May 30-June 2.
Amer. Assn. of Genito-Urinary Surgeons, Philadelphia, June 7-8.
American Association of Medical Examiners, Atlantic City, June 3.
American Climatological Association, Hartford, Conn., June 10-12.
American Gastro-Enterological Association, Atlantic City, June 3-4.
American Gynecological Society, Baltimore, May 28-30.
American Medico-Psychological Association, Atlantic City, May 28-31.
American Neurological Association, Boston, May 30-June 1.
American Ophthalmological Society, Atlantic City, June 12-13.
American Orthopedic Association, Atlantic City, May 30-June 1.
American Otological Society, Atlantic City, June 10-11.
American Pediatric Society, Hot Springs, Va., May 29-31.
American Proctologic Society, Atlantic City, June 3-4.
American Society of Tropical Medicine, Atlantic City, June 3.
American Surgical Association, Montreal, May 29-31.
American Therapeutic Society, Montreal, May 31-June 1.
Maine Medical Association, Portland, June 12-13.
Massachusetts Medical Society, Boston, June 11-12.
Nat. Assn. for Study and Prev. Tuberculosis, Washington, May 30-31.
National Association for Study of Epilepsy, Vineland, N. J., June 3.
New Jersey Medical Society, Spring Lake, June 11-13.
North Carolina Medical Society, Hendersonville, June 18-20.
Rhode Island Medical Society, Providence, June 12-13.

INTERNATIONAL CONGRESS ON TUBERCULOSIS

Held in Rome, April 14-20, 1912

The congress was unfortunate in finding Italy engaged in a war at the time it convened. Of necessity this detracted somewhat from the interest of local officials and the profession. The attendance was undoubtedly lessened by the postponement from September of last year to April of this year.

Confusion of Tongues

In the matter of language, this congress was only 33 per cent. worse off than its predecessors, the former having three official languages and the latter four. An attempt was made to overcome this difficulty by having the abstracts printed in four languages, but this was done with only a few of the reports. The majority appeared in only two languages; a few in only one, and a small number in three. In most instances the translating was so poor that the printed abstract gave a very imperfect idea of the contents of the report.

The confusion of tongues is a hopeless barrier to adequate discussion and thorough report of a scientific program. Delegates attending any international congress have a right to expect, and even demand, that the papers and discussions shall at least be translated in abstract into the three official languages of the world. Apparently no provision was made to report the discussions and it seems probable that the published transactions will contain only the original papers in the languages in which they were read. This will detract seriously from their international value.

2. Progressive Medicine, December, 1906.

The attendance at the congress was preponderatingly Italian and French; the scientific business was chiefly in those languages. The Germans were next most numerously represented; there were a few Englishmen, and a sprinkling of Americans. It was rather humiliating and very embarrassing to the English-speaking delegates to find that they had practically been ignored in the arrangements for the congress.

Character of the Discussions

There was no striking discovery presented to the congress similar to that of Robert Koch when he announced the nonidentity of human and bovine tuberculosis. The sessions, as a whole, were largely devoted to threshing out old straw, and the exploiting of serums and vaccines that have been on the market under fanciful names for years for the cure of tuberculosis. There was very little of what can strictly be called original work, and none of it was of epoch-making importance.

It is evident that an international congress does not appeal to the research worker as an inviting field for the presentation of his contributions. This is probably largely due to the fact that original thinkers do not care to take the risk of having their work fail of proper consideration, as must necessarily be the case in the confusion attending an overcrowded program. It is true that there were many excellent reports submitted, and much in the proceedings will be found to be of great value. Less than this could hardly be expected in such a representative gathering containing a considerable proportion of the master-workers in the tuberculosis field. The program was overloaded. The five days devoted to the reading and discussion of reports were inadequate for the number of reports and papers. The scientific work was conducted in three sections with a subsection dealing with surgical tuberculosis. In all there were twenty-nine reports submitted by from one to three members. In a medical program in America they would be called symposiums. Certain topics were chosen and a number of men were assigned to discuss them. These occupied the morning hours of every session; the afternoon being taken up with the reading of voluntary papers. These numbered 223. It will be seen from this that the program was frightfully overcrowded.

Relation of Bovine and Human Tuberculosis

The subject that attracted the most attention was the discussion of the relation of bovine and human tuberculosis. This was discussed very thoroughly in the conference which preceded the congress proper, and the discussion was participated in by the master-minds of the leading European countries. The discussion was characterized by eminent fairness and a disposition on the part of all to arrive at the truth. During the past three years and a half numerous investigators have been at work on this very important and very practical problem, and while the leaders are not yet in perfect accord, they are much nearer together than they were at the last congress; near enough, at least, to make it possible for them to agree unanimously to the following resolution:

Resolved, First. The prophylaxis against tuberculosis must principally be directed against the suppression of contamination from man to man and principally in the family.

Second. The contamination of man by bovine infection is of less frequency; nevertheless it is necessary to continue al measures against infection of bovine origin.

By way of explanation it may be said that this is a compromise resolution, and really represents the conservative view still held by the German school, which, while willing to admit the infection of man from bovine sources, does not regard it as a serious menace. The English and Scandinavian investigators regard it as a serious menace, with the French occupying a position somewhere between these two extremes.

In the discussions there were certain local conditions brought out in the several countries which may account for the difference in the findings of the several investigators. For example, in Germany and France milk is usually cooked, while in England and the United States it is usually taken raw. There also seems to be more bovine tuberculosis in some countries than others, and especially in the colder climates, and also more tuberculous cattle in different localities in the same country. It may be found later that these local conditions

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have an important bearing in certain localities, and if so it will tend to fortify and strengthen the views expressed in the resolution.

The work of the British commission may fairly be regarded as the most reliable. Their work has been far more comprehensive and more open-minded. The British commission has no preconceived views, but is simply seeking the truth, while the members of the German school are apparently "followers" of Koch, and seem to be seeking to establish his views rather than to arrive at the truth.

The suggestions that attracted most attention from the standpoint of treatment was a revival of the method of treating unilateral pulmonary tuberculosis by the production of artificial pneumothorax, certain aspects of immunity, and heliotherapy. It was significant that very little was said on the influence of climate *per se* in the treatment of tuberculosis, except surgical forms in which the French insist on the virtue of sea air, while the Swiss insist just as strongly on the specific influence of mountain air and sunlight. Inasmuch as they are all securing substantially the same results, it is fair to assume that the final conclusion will be, as in the treatment of pulmonary tuberculosis, that the virtue of their methods consists in fresh air and sunshine rather than any peculiar attribute, either of sea air or mountain air. Both nations are to be congratulated on their excellent work in this important and much neglected branch of the work. The United States seems to be behind all the leading European nations in making provision for the systematic treatment of surgical tuberculosis.

Social Defense

MLLE. CHAPTAL opened the section on social defense with a report on women's work in the restriction of tuberculosis. She maintained that their cooperation was essential and it remained for the United States to show what women could do in this field, as represented by the visiting nurse. The relation of women to this movement is beginning to be understood in Europe.

ELLEN N. LA MOTTE, nurse-in-chief of the tuberculosis division of the health department of Baltimore, spoke of the value of the visiting nurse in the homes of the tuberculous poor. She thought that the greatest value she had had in the movement was in recognizing and stating the conditions that made any effective prophylaxis impossible.

D'ESPINE, of Geneva, discussed tuberculosis and the schools and said that open tuberculosis among scholars was rare, but on the contrary latent tuberculosis was very common and the schools should be carefully studied in the contest with tuberculosis. Successful work should include the careful study of every scholar, and the exclusion of all pupils and teachers who are excreting bacilli and the notification of parents of all children with latent and closed lesions.

MERY, of Paris, and BADALONI, of Rome, discussed the problem largely from the standpoint of early diagnosis. The latter emphasized the importance of faulty positions in school as a predisposing cause.

HOMER FOLKS, of New York, presented the data bearing on the extent of instruction in schools of the United States in relation to the nature, cure and prevention of tuberculosis. His paper discusses how far medical inspection has a bearing on the prevention of tuberculosis.

KUTNER, of Berlin, said that the school was the most inviting field for attack on the tuberculosis problem. Adequate school inspection was of first importance, and this should be associated with instruction on the causes and prevention of tuberculosis.

DE FLEURY, of Paris, discussed combined action of charitable and sanitary agencies, based on what is done directly and indirectly in France, the study dealing especially with economic efficiency. Among the various agencies he places the sea-side sanatoriums, of which France has twenty-nine, in the first rank. It is of the utmost importance to improve the construction and sanitation of cheap dwellings, and the quality of food, particularly milk.

STURE CARLSSON presented an excellent summary of the work of the Swedish National League against tuberculosis. The league has presented its work to former congresses. The successive reports show what can be accomplished by a voluntary organization. The report contains an excellent intensive study of a single parish in Sweden in which a house-to-house canvass was made to ascertain the incidence of tuberculosis. Another interesting study is by Nils Holmien of the metal workers of Eskilstuna. In all 3,923 workers were examined as well as their families and dwellings, the whole forming a valuable contribution on the relation of certain occupations to tuberculosis. A description in detail of the antituberculous dispensary service in Stockholm closes the report.

OTIS, of Boston, and others, discussed institutions for the prevention of tuberculosis. General hygiene was emphasized and of the specific means, the first rank was given to sanatoriums, next dispensaries, then the "preventorium" in which persons of lowered vitality are treated, open-air schools which are just coming into vogue, the day and night camp, and the visiting nurse.

HOPE, of Liverpool, and KÜSS, of Angicourt, discussed the notification of tuberculosis. They agreed that compulsory notification of all forms of tuberculosis should be the ultimate aim, but such rules should not be hastily adopted. At first a voluntary notification should be introduced. Later it should be made compulsory in hospitals and dispensaries, and among classes of the population least able to care for themselves. As public opinion becomes educated, the rule should be extended to all classes and cases.

PAUL JUILLERAT, chief of the Bureau of Hygiene of Paris, discussed the sanitation of the house. For fifteen years this study has been carried on and has conclusively shown that the mortality of tuberculosis is directly influenced by the height of buildings and the amount of sunlight and air. In excessively crowded quarters, where light and air-space is small, no improvement of the interior has resulted in diminishing the mortality. In 816 houses where it was possible to alter them so as to let in air and light, there was a diminution of tuberculosis amounting to 16.60 per 10,000 inhabitants.

G. SIMS WOODHEAD maintained that alcoholism and tuberculosis have a direct relation. The views were based on statistics giving the incidence of tuberculosis among drinkers and others, also its prevalence in workers prone to the abuse of alcohol. The occurrence of tuberculosis in families of drunkards and experimental infections in alcoholized animals all pointed to the direct relation of alcohol to tuberculosis.

H. TRIBOULET, of Paris, while not denying the etiologic importance of alcohol, claimed that the effect was indirect. Hereditary alcoholism altered the economic status of the family, which predisposed to infection. The same was true of drinkers who spend their money for liquor, instead of providing good food and proper dwellings. There is no question of the relation of the two conditions; the only difference was as to how they operated.

JOHN ROBERTSON, medical officer of health, Birmingham, said that tuberculosis was spread by work in the home. In England this class of work is done for so low a wage that the workers have to put in long hours and this lowers vitality.

CAROZZI, of Milan, said that the problem was not so simple as stated, and that the character of dwelling and other factors played an important rôle. All were agreed that articles made in tuberculous homes were liable to spread the disease. When such articles were made by the tuberculous, they should be disinfected.

H. SCURFIELD, health officer of Sheffield, England, discussed the incidence of tuberculosis and measures for its prevention and used statistics of that city and the reports of the British government in illustration of the problem. He recognizes that the bacillus has no appreciable saprophytic existence, hence chance infections in the majority of cases do not produce recognizable disease. The mortality from consumption in England and Scotland has shown a marked decline in the last forty years, while that in Ireland has shown a slight increase. This is believed to be due to improved housing, better food, and higher wages, with better recognition of the conditions of labor. The death-rate from consumption in different parts of England varies. In inland manufacturing towns the death-rate for males is nearly double that for females. In coal-

mining districts where the housing conditions are bad, the death-rate is high among women. In Sheffield, the male death-rate from tuberculosis has been much higher than the female. This is to be attributed to the grinding and cutlery trades. Importance is attached to the separate tabulating of deaths among women, men and children, as throwing light on local tuberculosis problems. The reporter hoped that the medical insurance act would work favorably in encouraging early applications for aid which will be accorded as a right without the pauper stigma.

G. ANGULLI, Naples, recommended inhalation of pulverized chalk. This was one of the most striking suggestions made to the congress in the way of treatment. The speaker declares that necrotic tissue has an affinity for chalk, which aids the caseating process. The scientific basis the author finds in the ease with which fine particles are carried to the alveoli in the inspired air, and the freedom of chalk workers from tuberculosis. He finds that the inhalations are accompanied by a symptomatic improvement, a lessening of fever, cough and expectoration, and a gain in nutrition.

Immunity

PAUL COURMONT, of Lyons, discussed the different forms of immunity, both active and passive, and the raising of the power of resistance of the organism to tuberculosis. He finds the greatest advance in recent years to be the conception of anaphylaxis as applied to this disorder. Active immunity by tuberculin has given better results than the passive immunity obtained from serums.

NEUMANN, of Vienna, presented the active specific treatment of tuberculosis. Lung tuberculosis is peculiar in having a prolonged incubation period. It is important that latent, inactive, and active forms should be differentiated. The first is difficult of recognition, as it has few physical signs, but present views relating to allergy permit of identification. Among the many methods that have been proposed, the best are the von Pirquet, Moro and the conjunctival reaction, which can be used in succession, followed by the usual tuberculin reaction. Active tuberculosis is best detected by tuberculin injections beginning with a minute dose and increasing. This paper is too detailed to be abstracted.

A. CALMETTE, of Lille, says that the active treatment of tuberculosis is confined to the use of substances derived from the bacillus and generally called tuberculins.

WEBB, of Colorado, showed that guinea-pigs could be inoculated with virulent bacilli without causing tuberculosis, providing the initial number was small and the quantity gradually increased. Monkeys were inoculated with gradually increasing numbers from 1 to 65,000. Two and one-half months later they reacted to tuberculin, but at post-mortem no signs of tuberculosis were found, and the test for antibodies was negative. Two children, aged 3, of tuberculous parents, received thirteen inoculations of living bacilli from 1 to 150 each in three months, the whole number of germs used amounting to 607. The von Pirquet test was found negative at the end of four months and the children healthy.

MARAGLIANO, in a special communication, spoke of the possibility of preventive vaccination in man. He has been doing this for ten years. He distinguishes between the tubercle bacilli in the organism and tuberculous disease which originates only when the defenses of the organism have yielded. Every individual has specific means of defense represented by the reaction of the organism. To give relative immunity he thinks it unnecessary to use the living bacilli. Dead organisms are quite as efficient. These are mixed with glycerin and used in the same way as the Jennerian vaccine. He commonly makes three injections in the outer part of the arm. He has now been using these vaccines in sufficient numbers and for a period that would justify him in strongly recommending their adoption in the treatment of tuberculosis.

Several communications supported the value of Finkler's remedy. It is spoken of as "a color substituted with iodin." This is suitable for subcutaneous or intravenous injections. The other is "a soluble chlorin composition of a heavy metal." These are sufficiently vague to warrant the liveliest expectations, especially when we are told that tuberculins and serums have not fulfilled expectations. Fortunately it is not thought that they will displace, at least for the present, dietetic and hygienic measures. This sort of thing in an international congress would seem to warrant some drastic revision of future programs.

BAYLE, of Cannes, was the only one who advocated opotherapy. He uses the spleen of pigs, which after it has been filtered and made aseptic has, in the form of injections or by the mouth, the activity of an antituberculous serum. It is prepared in ampules of 5 c.c. If injections are to be used, they are to be given for twelve days, after which there is an interval of a week followed by another series of injections, after which results may be awaited with confidence.

Specific Treatment

J. TEISSIER and S. ARLOING, of Lyons, furnished the only report on the use of specific serums. They were guarded in their opinions, not being able to account for the discrepancies between animal experimentation and the disappointment attending the practical treatment of patients. The principal serums are those of Marmorek, Lannelongue, Achard, Rappin, Vallee, Jousset, S. Arloing and the bacteriolysin of Maragliano. Notwithstanding the frequent failures, they think that serums have a definite place in the treatment of a limited number of cases, and they may be used with advantage in connection with tuberculin and the hygienic-sanatorium management.

Abortion

The interruption of pregnancy in tuberculosis brought out widely differing views; some holding that pregnancy should be interrupted, others that it should proceed to term.

PAUL BAR, of Paris, said that pregnancy could awaken a latent tuberculosis and aggravate the evolution of the disorder. These untoward effects may occur early in the pregnancy but are most common during the last three months. Occasionally the disease assumes a rapid course after delivery. About two-thirds of the mild or latent cases are improved by the advent of pregnancy; those with crackling moist râles, bacilli in the sputum and fever are nearly always made worse; with cavities the prognosis is still worse, and in tuberculous septicemia pregnancy is a catastrophe. Those who do not interfere maintain that the results are quite as good, which is met by those who advise the termination of the pregnancy by the statement that operation is delayed and this accounts for bad results. Bar believes that a general rule is bad and that the question should be settled by the indications in individual cases. In every case there should be an active treatment of the tuberculosis.

A. MARTIN, of Berlin, advocated interference in all active cases of tuberculosis, the earlier the intervention the better the results. An expectant course should only be followed in latent cases. The method of terminating pregnancy is irrelevant providing it is done aseptically and without loss of blood.

L. M. BOSSI, of Genoa, emphasized the importance of Bar's studies showing that the greatest danger was in the later months of pregnancy. The improvements in obstetric surgery and the facilities for caring for premature children, should make the record of terminated cases better than it has been in the past. He urged rapid mechanical dilatation as the proper method of interference. In forty cases terminated before the sixth month, there was noted a marked improvement in the disease in most cases, while in twenty-three cases after the sixth month very few were improved.

Bovine Tuberculosis

B. GOSIO, of Rome, H. VALLÉE, of Alfort, A. S. GRIFFITH, of London, and H. KOSSEL, of Berlin, discussed the relation of animal and human tuberculosis. The latter affirmed that consumption was almost invariably due to human tubercle bacilli, transferred from man to man. Infection through milk and meat was of relatively little importance. Griffith declared that bovine, human and avian bacilli were fixed types. In the ox the infection is almost always of the bovine type, the human bacillus has not been found in the ox. All three types may be found in pigs. The avian variety alone occurs in

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birds. The human bacillus is the most frequent infection in adult humans, but the bovine type is very common in children. The bovine bacillus plays a not unimportant part in human tuberculosis. Vallée claims that 10 per cent. of human tuberculosis is due to the bovine bacillus.

PANNWITZ, of Berlin, reviewed the studies that have been made since the last congress, which show that bovine infection is not rare in children and that it should be combated by appropriate means; that bovine infection is rare in adults, as the bovine type in pure culture was only found in two cases out of 800.

G. SIMS WOODHEAD, of Cambridge, believes that the human and bovine types are morphologically identical but differ in cultural and pathogenic properties. Infections with each give similar clinical histories and identical lesions. The two types are variations of the same bacillus. A considerable proportion of tuberculosis in children is of bovine origin; for the most part the infection is transmitted in milk.

(To be continued)

MEDICAL AND CHIRURGICAL FACULTY OF MARYLAND

One Hundred and Fourteenth Annual Meeting, held in Baltimore, April 23-25, 1912

(Concluded from page 1536)

The Clinical Study of High Blood-Pressure

DR. A. W. HEWLETT, Ann Arbor, Mich.: While the resistance to compression of the arterial wall by the various instruments used may influence maximum pressure reading to some degree, the error from this source is negligible compared to variations in the readings themselves. Many factors give rise to marked rise of systolic pressure. It is well known that the pressure rises during emotional processes. Ordinarily, however, this rise is inconsiderable (10 to 13 mm.) and the pressure rapidly returns to the normal level. The marked rise of the blood-pressure during acute asphyxia is a well-known experiment, being due to strangulation of the vasomotor centers by the accumulation of carbon dioxid. Other conditions causing more or less marked rise of blood-pressure are acute cerebral compression, angina pectoris, renal disease and eclampsia. Hypertension is almost constant in uremia and eclampsia. In this latter condition the rise is of especial interest for the reason that after delivery, in favorable cases, the pressure returns to normal. In anuria, also, a moderate rise of blood-pressure is the rule. The chronic forms of arterial hypertension are usually associated with the presence of albumin in the urine. In my experience, the chronic nephritis associated with sepsis, especially chronic ulcerative endocarditis, usually showed no hypertension. The same is said to be true of amyloid kidney. In chronic glomerulonephritis and in the secondary contracted kidney, arterial hypertension is frequently present, but by no means constantly so. The most marked and the most common rise of arterial pressure occurs in chronic interstitial nephritis and related conditions.

Arteriosclerosis is not necessarily associated with high blood-pressure. It has long been known that chronic hypertension may exist in the absence of definite urinary findings. Of fifty cases in my series with continued high pressure, usually above 180 mm., eighteen showed no urinary changes other than rare traces of albumin or occasional casts.

As regards the relationship between the hypertension and the renal changes, we are more and more coming to the view that a high blood-pressure in many cases is primary and the involvement of the kidneys and arteries, perhaps only incidental. We are still uncertain concerning the manner of development of, high blood-pressure. The most important effect of continued hypertension is the cardiac hypertrophy. Various measures have been used for the reduction of hypertension. In the treatment of hypertension the question arises as to how far one must attempt to force down a high pressure. Clinical experience seems to be the only safe guide. Curative efforts should be tried against the underlying cause rather than against the high blood-pressure itself.

Cyclic or Recurrent Vomiting

DR. W. M. DABNEY, Baltimore: The onset is sudden, although there is frequently a history of slight indisposition for a day or two previous to the attack. The vomiting, as a rule, is the symptom of onset, while it remains the one symptom of moment throughout the attack. At the beginning of the attack the vomiting is of a forceful, projectile character. Later on, when the patient becomes weaker and more toxic, it becomes less forceful, and finally, in extreme cases, comes on with little or no muscular effort. The vomitus consists, at first, of the contents of the stomach; later of a watery mucus and finally, in some cases, of blood-tinged mucus. Examination of the stomach contents is not conclusive. Constipation is usually present, but this is not invariable, diarrhea being present in some cases. A peculiar odor to the breath is present from the beginning of the attack and in some cases, even before its onset; this is so marked as to be almost pathognomonic. The pulse, though rapid and strong at first, becomes weak and sometimes irregular as the attack progresses. The respiration is decidedly affected and in some cases its quality reminds one of the air-hunger of beginning diabetic coma. Abdominal pain is usually absent, but may be present and confuses the diagnosis.

The attack lasts from two to four days, as a rule, but may be prolonged for a week or more. The disease is primarily one of childhood; few cases occur after puberty. Heredity invariably plays an important part. The prognosis is usually good, although Comby reports ten fatal cases. The attack, if once seen, is so typical that it can rarely be mistaken. Sometimes, however, the differentiation from appendicitis is difficult. Routine treatment during the attack is unavailing. Alkalies, in large doses, have been and are still extensively used on the theory that the condition is one of acid intoxication. I have seen no good results from them during the attack, but consider them valuable in the interval. Diet in the free period is important, especially the partial elimination of starches and sugar. The condition probably belongs to the same general group as rheumatism and allied conditions. A rheumatic family history is often present, while nasopharyngitis and tonsillitis are not infrequent precursors or accompaniments. The appendix, so similar in structure to the tonsil, is frequently affected.

The Influence of Special Forms of Diet on Certain Phases of Chronic Nephritis

DR. C. W. MCELFRESH, Baltimore: Two hundred cases of chronic nephritis were studied. They were divided into four types, (1) arteriosclerosis (dropsy absent or slight), (2) associated with dropsy, (3) marked anemic symptoms, (4) marked retinal changes, concerning which the following deductions were drawn: (1) Properly selected diet is efficacious in reducing and maintaining a lower line of systolic blood-pressure, but it is to be borne in mind that a normal pressure is neither obtainable nor desirable. I believe that the normal blood-pressure is an abnormal blood-pressure in arteriosclerosis of the kidney. (2) While the value of decrease of sodium chlorid intake in many dropsical cases is beyond dispute, there are many cases not influenced by it, and in these, if the proteid be reduced and fats increased, a marked decrease in the anasarca follows. (3) In those cases in which headache, gastric symptoms and stupor are prominent features, the best results were obtained by cutting down both proteins and fats and making the diet largely carbohydrate. Uremia was always associated with a high urea content of blood, even though the urine content was low, or normal. (4) In those cases in which the eye symptoms were most prominent, the lowering of the blood-pressure by low protein diet, together with other agents, as salt rubs, massage and sweating, gave the best results. In all these cases of low protein diet the general nutrition of the body was taken care of by replacing the calorie deficit with extra amount of non-nitrogenous food.

The Pneumococcus in Surgery

DR. A. M. SHIPLEY, Baltimore: For many years the pneumococcus was looked on as being of interest only to the internist, but there is scarcely any tissue in the body immune

to its attack and, as a pus-producer, it ranks next to the well-known pyogenic organisms. Therefore, it frequently becomes the cause of distinctly surgical conditions. Some of the serious complications of pneumonia, such as empyema and abscess of the lung, are often due to the pneumococcus. Other conditions are thrombophlebitis, arthritis, osteomyelitis, parotitis, cholangeitis and cholecystitis, mastoiditis, puerperal sepsis, and, especially, pneumococcic peritonitis. The sources and avenues of infection still remain uncertain. The peritonitis may be a part of a general sepsis, it may be secondary to an infection elsewhere, or it may be primary. Clinically the peritonitis is often secondary to pneumonia. In these cases the weight of evidence is in favor of the blood-stream as the carrier of the infection. Pneumococcic peritonitis must not be confused with lobar pneumonia with referred abdominal pains and tenderness. The morbid anatomy of this type of peritonitis closely resembles that of the pleura under like conditions. The pus is rather characteristic. It is odorless, yellow or yellowish-green and contains flakes of fibrin. The onset is sudden, with a sensation of chilliness and, perhaps, a rigor. Diarrhea often precedes the attack and there is great pain, vomiting, prostration, leukocytosis, rapid elevation of temperature, and a rapid small pulse. Tympanites is usually not marked, the abdominal wall being rigid and scaphoid. A characteristic doughy feel has been spoken of. The progress of the disease is more rapid than that of other types of peritonitis. The prognosis is extremely grave, few patients having recovered. The treatment is that for suppurative peritonitis—nothing by mouth, rapid operation, little anesthetic, pelvic drainage and normal salt solution by the rectum.

The Gastric Crises of Tabes

DR. JULIUS FRIEDENWALD and DR. T. B. LEITZ, Baltimore: In the usual form of gastric crises, the following characteristic symptoms are observed: Suddenly, and without warning, the condition is ushered in by a paroxysm of pain in the abdomen, lasting a variable period of time and ceasing abruptly. The digestive functions are entirely normal in the interval. The paroxysm may be accompanied by vomiting of a certain amount of mucus and food, and may continue without cause for many hours and even days. Prodromal symptoms are rarely noted. The gastric crises of locomotor ataxia are ordinarily observed in the preataxic stage of the disease and frequently lead to errors in diagnosis.

The analysis of the gastric secretion shows an increase in acidity, although results are somewhat variable. Constipation is usually present, but diarrhea may be noted. The crises appear at intervals of a few days to six months, or may increase in severity as the malady advances. Sainton and Tronc describe six varieties: the vomiting, the gastralgic, the severe, the complicated, the abnormal and the variety exhibiting an alternation of these forms in association with other symptoms. Two theories have been offered to explain the nature of the gastric crises: first, that the condition is due to some derangement of the spinal nerve system; second, that it is due to a functional disturbance of the stomach. The prognosis is grave.

The indication for treatment is to allay the severity of the crises and to prevent a return, if possible. During the attack abstinence from all food must be insisted on, although at times liquid food may be allowed. Among remedies recommended are the oxalate of cerium, the extract of cannabis indica, extract of belladonna, bromids and chloroform. Cocain, codein and morphin at times exert a favorable influence on the crises. Remedies acting directly on the stomach rarely yield results. For the relief of pain, the external application of sprays of ether, or the local application of ice are useful. Lavage of the stomach is rarely of benefit, except in patients suffering with a coincident dyspepsia. Lumbar puncture has been employed successfully. If the crises become unbearable, rhizotomy should be performed. This may require resection of the roots from the twelfth to the fifth dorsal, or even higher. The Wassermann test should always be made, not only of the blood, but also of the spinal fluid. Whenever the reaction is positive, the most active antisyphilitic treatment should be instituted.

Our observations extend over a series of forty-two cases of tabes in which gastric crises occurred. The patients were all males, whose ages ranged from 29 to 64 years. The pain was severe in eleven cases, moderate in nine and variable in seven. The gastric secretion was obtained both during the crises and in the intervals. Of the former group, from thirty-five patients the acidity was normal in six, hyperchlorhydria was present in thirteen, hypochlorhydria in ten and the acidity was variable in six. In thirty-six cases in which the secretion was obtained in the intervals between attacks, fourteen showed normal acidity, twelve hyperchlorhydria and ten hypochlorhydria.

DISCUSSION

DR. RANDOLPH WINSLOW, Baltimore: I have performed rhizotomy in one case of this type. The woman was 42 years old and was almost at the point of death. The sixth, seventh, eighth and ninth dorsal roots were resected. The gastric symptoms disappeared, but the patient died in one week.

Arteriovenous Anastomosis in Raynaud's Disease

DR. B. M. BERNHEIM, Baltimore: The first case in which we performed arteriovenous anastomosis between the femoral artery and the saphenous vein was unsuccessful, because gangrene had already begun, and the leg had to be amputated. The second case was that of a girl with beginning gangrene. The anastomosis was done in Scarpa's triangle. The pain was relieved and the circulation is apparently as good as ever. The condition later returned on the other side, which was operated on in the same way. The patient is not entirely well, but is much improved. She has lost one toe since the operation, a year and a half ago. In these cases end-to-end anastomosis does not give as good results as the lateral method. The valves in the veins do no seem to offer any obstruction to the circulation.

IOWA STATE MEDICAL SOCIETY

Sixty-First Annual Session, held at Burlington, May 8-10, 1912

The President, DR. L. W. LITTIG, in the Chair

A list of the newly elected officers was published in THE JOURNAL, May 18, p. 1519. The President's Address will appear in THE JOURNAL next week.

The Diagnosis and Treatment of Fractures

DR. S. C. PLUMMER, Chicago: There is no controversy at the present time as to whether operative or non-operative treatment should be the rule of practice in the handling of fractures. Rather, each case should be considered on its individual merits. Fractures should receive more careful consideration. Non-operative measures should be exhausted before resorting to an open operation.

Malignant Tumors of the Mesentery; With Report of a Case

DR. PRICE E. SAWYER, Sioux City: In 1906 Vance reviewed the literature for five years and found twenty-eight cases of solid tumor of the mesentery. Out of twenty-seven operations there were thirteen resections of the bowel, varying in length from 1 inch in the shortest to 98 inches in the longest. Of these thirteen resections, six patients died and seven lived, making a mortality of about 46 per cent. Three of these cases were for sarcoma, all of which died. The number of males affected is eleven, ranging in age from 14 to 70 years, against sixteen females, ranging in age from 8 to 60 years. The diagnosis of tumors of the mesentery is very difficult, as the subjective symptoms are in no way distinctive. Pain, constipation, nausea and vomiting are usually present. The signs that most clearly give evidence of tumors of the mesentery are their position, their mobility, and their relation to other organs. Free mobility is the most important diagnostic sign, as no other abdominal tumor will show this to such a marked extent. My case was one of fibrosarcoma of the mesentery.

Etiology and Pathology of the Chronic Arthritides

DR. WILLIAM H. RENDLEMAN, Davenport: The specific causes of certain of the chronic arthritides have been dis-

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covered. Among these are tuberculosis, syphilis, gonorrhea and others. The chronic arthritides are local manifestations of general processes. A joint once damaged by trauma or toxemic absorption may, through the continued injury from use, be perpetuated indefinitely after the primary cause is terminated. Atrophic arthritis is essentially a proliferative process, beginning in the synovial membrane and resulting in atrophy of the bone and cartilage with ankylosis. It is probably of toxemic or infectious origin. Hypertrophic arthritis is a degenerative process of old people beginning in the cartilage and resulting in marked hypertrophy of the bony ends with deformity, but seldom ankylosis. It is probably not of an infectious or toxic nature. Infectious arthritis includes that rather large group known to be caused by the presence of germs or their toxins. The chronic arthritides, including arthritis deformans, rheumatoid arthritis, etc., probably consist of a number of distinct diseases due to various causes.

Right Rectus Incision for Appendicitis in Females

DR. J. R. GUTHRIE, Dubuque: I commend the Kammerer incision. It disturbs to a minimum degree the muscular tissue of the abdominal wall; avoids injuries to important nerves and arteries; affords the operator an opportunity to investigate and to treat conservatively diseased tubes and ovaries. In 85 per cent. of the cases of appendicitis in the female, there has been coincident disease of the tubes and ovaries sufficient to demand operative treatment. In many of these cases both structures were involved. Here the Kammerer operation particularly commends itself.

DISCUSSION

DR. D. S. FAIRCHILD, Clinton: I have used the Kammerer incision for a number of years, and like it very much for the reason that we can explore the abdomen more thoroughly. We do not undertake to open the abdomen for appendicitis or any other trouble of that kind, unless it is for inflammatory disease of an acute character, without exploring the stomach, the gall-bladder, and, perhaps, the kidneys, and we cannot do it as well through a McBurney incision as we can through a Kammerer incision.

DR. J. F. PERCY, Galesburg: I have had no experience with the Kammerer incision where I expected to do work in the pelvis. This incision has been used in those cases in which the appendix is involved. I have passed the time when I have tried to work through a small incision. When we have a large incision we can find more things in the pelvis than we expected before the operation.

DR. C. E. RUTH, Keokuk: While exploratory operations are necessary and always will be to some extent, there is a great tendency, I fear, with some of us to overdo the exploratory operation, and I feel that a place for the gridiron incision still exists. In the use of this incision I am enabled to get ample room for any operative work in that region. It is not sufficient, however, nor is it possible, to get sufficient room through this incision to enable one to operate on the adnexa or to explore the gall-bladder, but with the diagnosis carefully made we can almost always eliminate the necessity for a very extensive exploratory operation. I use the gridiron incision in all cases in which I have a purely appendical condition to deal with, because I have no right to use an incision that will confine my patients to bed for about twice the length of time it is necessary for recovery; it is impossible to break open a gridiron incision and the patient can leave the hospital within a week if there is no necessity for drainage.

Hemorrhagic Diseases of the New-Born

DR. LAWRENCE E. KELLY, Des Moines: The indications for treatment are hemorrhage, acute anemia, and in some cases infection. The only treatment that fulfils these indications is the transfusion or injection of human blood. Traumatic hemorrhages should be cared for along the line of general treatment for bleeding. In accidental bleeding the cord should be religated. As soon as hemorrhage of the spontaneous variety takes place, 10 c.c of blood should be withdrawn from the veins of the arm of one of the parents and injected immediately into the subcutaneous tissue of the child's back. This dose should be repeated every three or four hours until bleeding stops. If there is a reasonable suspicion that the child is syphilitic, inunctions of mercury should be given at once. In severe cases that do not respond to injections, transfusion should be attempted. If the case is in the hands of one familiar with blood-vessel surgery, an immediate transfusion is the best form of treatment, as the child is at once relieved of the anemia, and if infection is present, this also is quickly overcome by the antibodies of the transfused blood.

Increased Diet in Typhoid

DR. M. J. KENEFICK, Algona: The advisability of the use of a more varied diet in typhoid must be decided at present on practical and not theoretic grounds, for the knowledge of metabolism in fevers is not yet sufficiently accurate for us to draw definite conclusions from experiments which, at best, can only deal with a very limited phase of the question. The fact, however, that a more liberal diet is now being employed by so many trustworthy and experienced clinicians is certainly justification for those who desire to try this method more fully.

The Molding of Public Opinion Regarding the State Care of Epileptics

DR. WILLIAM PFANNEBECKER, Sigourney: The public looks to the medical profession for advice and help in matters of health and disease. We should use our efforts to nominate and elect as many physicians to the General Assembly as possible. With the profession liberally represented in the legislature we would be in much better shape to obtain the necessary health legislation, as well as the appropriations so much needed by our state board of health, and the institutions established for our afflicted ones who are public charges.

Owen Bill

The society urged immediate and concerted action on the part of our senators and representatives in Congress in favor of the Owen bill.

OHIO STATE MEDICAL ASSOCIATION

Held at Dayton, Ohio, May 7-9, 1912

(Continued from page 1531)

The officers elected were named in THE JOURNAL, May 18, page 1520.

The Early Diagnosis and Treatment of Syphilitic Diseases of the Central Nervous System

DR. EDMUND H. BAEHR, Cincinnati: The value of the serologic examination of the blood-serum and the cerebrospinal fluid in diagnosis of disease of the central nervous system is established. Positive Wassermann reaction in the fluid is absolutely indicative of paresis, tabes or meningeal syphilis, and it becomes possible even to distinguish between these by a careful study of the globulin and lymphocyte content. Though tabes may exist in the absence of a positive Wassermann reaction in the cerebrospinal fluid, no case has occurred in which there was in addition no abnormality in the fluid, such as lymphocytosis or globulin excess. At least one variation is present always. A spinal fluid showing a strongly positive Wassermann and an excess of cells and globulin as well, must be considered either a syphilitic meningitis or paresis. These observations substantiate the old belief that tabes and paresis developed on syphilitic foundations.

Discrimination should be made between the types of cases selected for treatment with the strong antisyphilitic remedies. Not only the physician, but the intelligent patient also should know that the loss of coordination of movements and the loss of vision will not be restored by any agent used; that it is possible, but by no means certain, that the disease may be arrested in its development, but that a pronounced improvement may be expected of all the distressing symptoms, the pains and parasthesias, the bladder and rectal weakness, which give the sufferer more concern usually than do the failing vision and insecure gait.

DISCUSSION

DR. W. S. THAYER, Baltimore: I would emphasize the importance of thinking of tabes in obscure abdominal paresis.

DR. LEWIS A. LEVISON, Toledo: It is a very wrong conclusion that with an inactive Wassermann the patient is not syphilitic. Cases of tabes, congenital syphilis and gumma have been seen in which there was no positive reaction. The positive Wassermann is always much more important than the negative and has much more significance. Where patients have been treated with salvarsan, etc., the Wassermann may become inactive for weeks or months, and again become positive. If it disappears a few days after treatment it does not mean that the patient is cured.

DR. W. J. STONE, Toledo: Reasoning that syphilis is a degenerative disease and that it has been sufficiently treated in years gone by, it is hardly to be expected that it would be benefited by salvarsan or mercurial treatment, but the experience is that salvarsan, intravenously, is followed by marked benefit. The Noguchi test is more valuable than the Wassermann in excluding syphilis. In latent syphilis only about 50 per cent. of cases give a positive reaction to the Wassermann while the cobra venom test will give 78 per cent. positive results.

The Municipal Control of the Milk Supply of Ohio

DR. CHARLES F. TENNEY, Toledo: No one has the right to use the words, "certified milk," unless the cap bearing the name has been furnished by a body of medical men usually selected from the local medical society for this purpose. This stamp means that the producer has conformed to the rules and regulations governing the production of certified milk as laid down by the American Association of Certified Milk Commissioners. The Holstein cow is the ideal furnisher of milk for infants and invalids, giving a fat percentage ranging from 3.5 to 4 per cent., which is about right for the child's intestinal tract to digest. The fat molecules are smaller and more easily broken up, and the volatile glycerids are less in amount, thus making the fat much more easily assimilated by the child's intestines. The Holstein cow is less apt to have tuberculosis and is more hardy than the Jersey, whose fat percentage is too rich for the child's digestion.

In Toledo, biweekly examinations of the milk are made by a chemist, and the bacterial counts of the milk must conform to the milk commission's requirement, which is not over 10,000 per cubic centimeter, and in case of the butter fat, at least 3.5 per cent. All employees are examined by a member of the commission, and any new man hired for this work must report to a member of the commission for a physical examination before he may start work. An analysis of the water from the well is made twice during the year. In Toledo, certified milk has not only given clean milk to the bottle-fed baby and for the invalid who is largely dependent on a milk diet, but it has awakened the authorities to an increased activity by the comparisons of the certified milk count of 10,000 and the city's average milk count of 10,000,000.

Chronic Infectious Endocarditis

DR. OSCAR BERGHAUSEN, Cincinnati: The cases under consideration are those properly belonging to those classified under the heading of malignant endocarditis, but rarely as intense in their clinical manifestations. The blood-culture usually discloses the presence of pneumococci, staphylococci, influenza bacillus or the so-called *Streptococcus mitior* or *S. viridans*. The portal of entry of the organisms thus far isolated in these cases is unknown, although the tonsil will be the organ accused by many. Pathologic changes in the form of warty excrescences on the mitral and aortic valves with accompanying changes in the heart muscle are produced, yet the clinical signs elicited on an examination of the heart may be so slight as to cause some doubt as to whether such changes have really taken place. The course is essentially a chronic one; sooner or later the cardiac changes become more evident and the patient dies as a result of cardiac failure or through the production of septic emboli in the kidney, brain, lungs or any organ. Cerebral hemorrhage was the cause of death in one of my cases. In cases with a persistently remittent type of temperature curve, with or without distinct symptoms on the part of the heart, and commonly with joint-symptoms, a blood-culture will occasionally be found positive and reveal the presence of endocarditis lenta. Such cases can properly be termed chronic septicemia or chronic septicopyemia. The patient has, to a certain degree, protected himself against the invading organisms, and the latter have probably adapted themselves to the antibodies of the heart. Although a temporary restoration of an apparently normal condition is possible, the tendency is for the bacteria sooner or later to overcome the resistance of the host. The blood-picture is a varying one, depending on the course of the disease. A secondary anemia is not uncommon, although the total number of red cells is not always diminished.

The use of autogenous vaccines has been followed by only temporary periods of improvement. The use of antistreptococcus serum likewise is not followed by improvement and may produce some harm by the sharp reactions which may follow. Salicylates are of no value. Ordinary dietary and therapeutic measures alone are indicated.

DISCUSSION

DR. E. A. WAGNER, Cincinnati: Classification of these so-called chronic rheumatic conditions is very difficult, especially on account of the varied bacterial findings. I advocate the bedside method of making cultures. The blood-cultures are frequently inactive in chronic rheumatism, unless during acute exacerbations or when the temperature is high. It would be well to follow up the cases of acute rheumatism in which the temperature is high.

DR. FRANK WINDERS, Columbus: I recently had a case which differed in the length of time over which it had extended, so that I was disposed to call it subacute rather than chronic endocarditis. The patient was a man, 34 years of age, an automobile dealer, taken sick last September, treated for eight weeks, then allowed to get about, and then treated for chronic malaria, pronounced so by the attending physician on account of the enlarged spleen, though he could not find the microorganism. The interesting feature was the very sudden change in the physical signs during the course of observation. Blood-cultures made showed staphylococcus, and a radiograph showed a large heart whose shape pointed to an infusion in the cardiac sac, a faint mitral systolic murmur, with low tension. The tenth day under observation, while taking a bath, he had a sudden attack of angina and there was a remarkable change in the physical condition. There was a very late diastolic murmur and typical pulse, as though he had lost a part of one of his aortic valves. Autogenous vaccines were used without result; it was thought some benefit followed the use of the stock vaccines, but the patient died and no autopsy could be obtained.

DR. W. S. THAYER, Baltimore: These are among the most distressing cases a physician is called on to treat. Most of them are fatal. Another point is that the *Streptococcus viridans* is of extremely slow growth. The only chance for recovery lies in putting the patient in the best condition, keeping the nervous system as well as may be, and avoiding, as far as one can, the meddling of the family. This last is the most difficult part. Much care should be taken in the use of serums and the vaccines. I do not think that there is evidence that vaccination does any good, and in some cases it does harm, without doubt. Some hope may be had from an autogenous antistreptococcic serum, but care must be taken with this, because of the urticaria and other things produced which do not help the patient.

DR. W. J. STONE, Toledo: If any benefit is to be had from vaccines the vaccine must be made properly, corresponding to the type of organism isolated from the blood, and made by experienced men.

Alimentary Respiration; The Secretion of Carbon Dioxid by the Alimentary Mucosa and Its Relation to Eructation of Gas and the Abnormal Inflation of the Stomach and Intestine

DRS. R. T. WOODYATT and EVARTS A. GRAHAM, Chicago: There seems to be a tacit agreement that gas in the stomach and the resultant belching mean one of two things: bacterial

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fermentation or swallowed atmospheric air. But there are reasons for believing that these two causes are not responsible for all cases of gas in the stomach, especially in cases of acute dilatation of the stomach and certain cases in which belching is associated with hyperacidity. In this connection it is entirely credible that gases might be secreted by the wall of the stomach. From our observations it would seem clear that gas can both be secreted and absorbed by the alimentary tract under physiologic conditions, and since pathologic processes, in general, may be regarded as merely disproportionate physiology, it is not unreasonable to suppose that under pathologic conditions the secretion of carbon dioxid into the stomach might become excessive. Granting this, why should not a clinical differentiation be made between distention due to this cause and that due to causes already recognized, and logical treatment prescribed for each. Finally, if gases may pass to the alimentary mucosa from the blood, should not alimentary respiration, as well as pulmonary respiration, be taken into account in the course of studies in which stress is laid on blood gas determinations, especially those touching such questions as shock?

An experimental study has been undertaken looking to the answer of these questions, and we studied particularly the condition known as acute dilatation of the stomach, the cardinal symptoms of which are rapid, even sudden enlargement of the stomach which becomes filled with fluid and gas, associated with vomiting and collapse, often ending in death. Most cases have occurred after surgical operation performed under chloroform anesthesia; some have followed anesthesia alone, while others have occurred in the course of pneumonia or other infectious diseases. Still others have followed injuries without anesthesia, and a very few have occurred suddenly in apparently well people. Interpreting the fluid contents as equivalent to edema fluid and gas, an attempt has been made to produce the picture of acute dilatation in all its essentials, in animals, by methods which might be expected to cause edema of the stomach. Procedures similar to those used by Fischer on the kidney have been used. The theory which is offered for acute dilatation of the stomach is that it is an asphyxia of the stomach with the acidity which this implies, causing an edema; that the stomach contents are a mixture of exudate and gastric juice, and that the gas comes from the stomach walls.

DISCUSSION

DR. C. F. HOOVER, Cleveland: As these gases were taken from the stomach immediately after death, in the experiments, could not the gas found be from the blood itself, or a secretory function analogous to the change in the pulmonary system?

DR. R. T. WOODYATT: The percentage of gas is so much higher than that of the blood (24 per cent.) that it would be like having water flow up hill.

DR. C. F. HOOVER: I saw a case in which the stomach was seen to dilate during a pelvic operation. I would ascribe this to muscular inactivity, an inhibition; it could not have been a passive distention. It is not an active distention from the accumulation of gas in the stomach, but rather an extreme relaxation of the stomach. I would be inclined to look on what has been described as an acute dilatation as an attending circumstance rather than the result.

The Fundamental Factors in Cardiac Conditions

DR. PAUL G. WOOLLEY, Cincinnati: To take the heart out of its vascular connection—the system to which it belongs—and treat it as an independent organ, is to take a serious liberty, and this liberty is excusable only if it is remembered always that the heart is not a separate organ but really a series of chambers that have developed by dilatation of a certain part of the vascular system. Pathologic changes in the heart are the result of processes which affect the muscles, the valves, the conduction or nervous system. Leaving out of consideration the developmental defects, the conditions of the chambers of the heart are the results of the amount of blood they must receive, this depending on the condition in the peripheral vessels and in the blood itself—caliber of the vessels, elasticity, viscosity, resistance—and on the condition of the valve-efficiency; and on the amount of blood they contain, which latter depends on the condition of the musculature. The processes known as degeneration and inflammation occur under mechanical and chemical insults, two series of processes which, while they have much in common, are primarily entirely different, and both of which are confused with atrophy. The same looseness of terms occurs as in the case of renal diseases. It is rarely, if ever, justifiable to speak of any other than an interstitial myocarditis, which may have an acute or chronic character. Other conditions, classed now with the inflammations and involving the myocardium, should be called myocardial degeneration. A heart that has suffered considerable fibrosis because of strain is often said to be the seat of a chronic interstitial myocarditis; but it is a heart of compensatory fibrosis.

Leaving aside tumors and anomalies, there are two processes that are at the base of all cardiac lesions, inflammation and degeneration, these resulting from either mechanical or chemical causes. Either alone or in combination, inflammatory and degenerative changes are able to produce certain states of the heart as a whole which are called hypertrophy, atrophy, myocarditis, valvular stenosis, valvular insufficiency, aneurysm, rupture, etc. Extrinsic factors operating through the vagus or sympathetic nerves produce physicochemical changes in the myocardium and in the muscle cells of the bundle of His which cannot be distinguished with the eye or other optical apparatus, but which lead to various clinical effects. Only the most careful analysis of symptoms will make it possible to determine the character of what is always a vicious circle in cardiac diseases, and to interrupt this circle at the proper point.

Treatment of Hemorrhagic Conditions with Normal Human Blood Serum

DR. LOUIS A. LEVISON, Toledo: The serum treatment has been practically specific in the hands of all who have tried it. It stops hemorrhage, thus saving life in a class of patients whose mortality under all other classes of treatment reached 90 per cent. Human serum has distinct advantages over horse or other animal serums. It never causes toxic or anaphylactic symptoms in any dosage. The use of the serum is also preferable to the whole blood, which has been advocated. The blood-serum can be obtained from any healthy individual. The blood is allowed to clot and the serum is ready for use. The average dosage is 10 c.c., repeated as often as is necessary to stop the hemorrhage. Besides its value in stopping hemorrhage, the serum is a perfect food which is invaluable to undernourished children.

(To be continued)

AMERICAN ACADEMY OF MEDICINE

CONFERENCE ON CONSERVATION OF SCHOOL CHILDREN

Held at Lehigh University, South Bethlehem, Pa., April 3-4, 1912

The President, DR. ALEXANDER R. CRAIG, Chicago, in the Chair

How Far Shall the Public School System Care for the Feeble-Minded?

MR. ANDREW W. EDSON, New York City: The feeble-minded children who should be in attendance at the public schools are those who, while below par in mental acumen, are susceptible of intellectual growth. All others are institutional cases. Suitable classrooms in regular school buildings should be secured for such children. The classes should be small to permit of individual training. Specially qualified teachers should be selected. The course of study should lead to some vocation, and should include physical and manual training. The skilled teacher and the skilled physician should work side by side.

MR. J. H. VAN SICKLE, Springfield, Mass.: State supervision over feeble-minded boys should begin before the development of criminal tendencies. To prevent the marriage of feeble-minded girls and shield them from temptations is an obvious duty and one which the state can perform more effectively and at less expense than the local community. For

a number of years these boys and girls may be grouped in special classes and taught in public schools. In border-line cases several years may pass before it can be determined whether a child is feeble-minded or merely backward; hence the value of the special class in the public school. Except in the exceedingly small number of instances in which feeble-minded children have good homes, local communities cannot safely retain them beyond the age of adolescence. The public school can render its best service by teaching the feeble-minded such elements of simple industry as will render them most nearly self-supporting on entering the custodial home.

DR. E. BOSWORTH MCCREADY, Pittsburgh: The public school is not the proper place for the education of the feeble-minded child. Careful examination should be made of all children when first entering school. Those found to be feeble-minded should be excluded and segregated in institutions. Doubtful cases and children backward in their development should, after the correction of physical defects, faulty environment, etc., receive the necessary training in special classes and be under the observation of physicians especially trained in this sort of work.

DISCUSSION

DR. WILLIAM G. SCHAUFFLER, Lakewood, N. J.: While I agree as to the need of segregation of feeble-minded children, the parents have just as much right to say what shall be done with these children as has the physician or educator. The first thing to do is to find out who these children are and then do the best we can under the circumstances. The law in New Jersey requires that children three years behind the normal must be provided for in special classes not to exceed fifteen. The feeble-minded, merely backward and the physically disabled are looked after separately when found to have been more than three years in one grade.

MISS JOHNSON, New York: Until we can get proper institutions for these children we must do something for them in the schools. The social service side of the public school work is very valuable. Let us have paid social workers. The only way by which we can hope to place children where they belong is to get the parents' good-will. The social worker can do that when the teacher will fail.

DR. W. G. SCHAUFFLER, Lakewood, N. J.: I feel that we might go a step further and make it compulsory to report every case of feeble-mindedness coming under observation. Legislatures should give the right to segregate these people who are the greatest social menace of the age to-day.

Child Labor Versus the Conservation of School Children

MR. OWEN R. LOVEJOY, New York: We must take a higher ground in relation to the care and training of children. We must apply the same scrutinizing attention to this human product that manufacturers and merchants are applying to specialized methods of securing business efficiency. I venture to predict that we shall recognize that the child is so truly an asset of the state that during his entire period of minority the state will claim supervision of his care, physical training and educational opportunities. The relation of parent to child will not be less than now, but more.

TEACHING HYGIENE IN PUBLIC SCHOOLS

What Should Be Taught?

DR. SENECA EGBERT, Philadelphia: We should first have the pupils know their bodies, and to realize that no one may reasonably hope for excellence in living if the spiritual, mental or physical personality is neglected. The development suggested involves a working knowledge of human anatomy and physiology, and the need of teachers competent to give such instruction who have a real enthusiasm for the subject. Instruction of the very young may be given by the inculcation of comparatively few and simple truths and by directing them to good examples for practice and imitation. A beginning may be made with the nature studies, leading almost unconsciously to the proper appreciation of sex hygiene. Because of the large number leaving school at 14 a course in hygiene, including as many of its subdivisions as can be comprehended, should be made a part of the schedule for the grammar school. Such a course should appeal strongly to the pupil's personal consciousness and sense of self-profit in the higher sense. For the high school I would enlarge the course until it involves an extensive scope of the general subject, and until the altruistic appreciation of it supplanted the egoistic and it was actually apprehended as being, in truth, the science of public health. A great need for the accomplishment of the work is competent teachers.

The Teacher's Point of View

DR. PERCY HUGHES, South Bethlehem: What should be taught is, in the first place, an ideal of complete living, realized as far as may be under the conditions of the schoolroom. During the first six years of school life hygiene should be taught as incidental to the art of doing and living efficiently, of obtaining those scholastic and social aims which a true school life makes prominent. In the seventh or eighth grade, at the dawn of adolescence, the rules of health, and some of the most evident data of physiology may be summarized, with special reference not so much to the child himself as to the social and civic life of the community into which he must now feel he is entering. There seems to be every reason why in the high school something of both physiology and hygiene should be taught; and doubtless the hygiene should rest more directly on physiology, but the considerations which vary in every school will determine how the instruction shall be given. To bring the whole school life to bear in the formation of hygienic habits and ideals of living requires a teacher of at least a good high-school training supplemented by a normal-school course in which much of the work has been brought directly to bear on just this purpose.

DISCUSSION

MR. F. D. RAUB, Allentown, Pa.: If in the schools the pupils can be imbued with the importance of maintaining a certain manner of life conducive to good health, much will be accomplished toward making the child a useful member of the community. In the primary grades some of the features introduced are care of the body, the kind of food necessary, the use of the special senses and the care of certain sense organs. In the grammar grades more of technical detail can be presented, bearing in mind always the necessity of inculcating good health habits. Instruction should be given concerning the different organs of the body, including a general knowledge of their structure and functions.

DR. M. P. E. GROSZMANN, Plainfield, N. J.: This coordination of the physical care and the training in proper hygienic habits which reflect on the mental and moral attitude is of extreme importance.

DR. HELEN C. PUTNAM, Providence, R. I.: It does no good to talk about hygiene in educational institutions under unhygienic conditions. Our public schools and colleges, and universities to some extent, are hotbeds of tuberculosis. The tuberculosis death-rate among teachers is higher than in any other profession.

DR. J. K. WEAVER, Norristown: The lack of practical knowledge on the part of teachers is a grave fault in our teaching of hygiene in schools.

Methods in Vogue

MR. W. S. STEELE, Harrisburg, Pa.: If we can bring boys and girls to see that physical exercise is necessary in order to keep their arteries from hardening, that overstraining the heart is not good physical exercise, that to eat and drink too much is simply to overwork the organs of elimination and thus bring on various ills, we are not only making them more efficient engines in the great factory of life, but we are creating an agreeable disposition and may, perhaps, prepare a better field than we realize for the dropping of spiritual seed.

Improvements Suggested

MR. LOUIS NUSBAUM, Philadelphia: The most vital factor in the teaching of hygiene is the teacher. She must, in no ordinary degree, have faith and enthusiasm in her work. So far as school life permits, she must be the exemplification of her teaching. If we will relate our teaching to the child's

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daily acts so that he will breathe correctly, take proper kind and amount of exercise, sleep at reasonable hours, and in a well-ventilated room; so that his body and clothing will always be clean; if we can persuade him to be temperate and modest in all things, we shall be giving a kind of training which will result, not only in personal health and happiness, but ultimately in increased health, happiness and efficiency and an improved morality of the entire community.

How Should Hygiene Be Taught?

DR. JAMES S. GRIM, Kutztown, Pa.: The average training-teacher in this work is ready to proceed toward better things when the medical profession and superintendents of schools create a sentiment for a different type of examiner, a man who puts health first and anatomic details second. Microscopic minutiæ as an end will part company with interest unless the teacher is not only unusually strong but a trained biologist as well. An examination on hygiene of a prospective teacher should in some way include the bodily habits of the applicant, the carriage, the vitality, the sanitary ideals actualized in practice. We have been spending too much time on the human mechanism and too little time on the child's environment. If children see how and where the house-fly breeds and what it does they will soon be interested in its extermination.

Teaching Hygiene for Better Parenthood

DR. THOMAS D. WOOD, New York: The teaching of hygiene can further no interest so important as that which relates to parenthood. For practical eugenics it is essential that the romantic, the affectional basis of marriage should be preserved, but the sentimental and emotional elements should be supported and guided by intelligent appreciation of all the factors necessary for parenthood which will protect the biologic values. This can be accomplished only by the development of controlling ideals which are supported by reason, intelligence, ethical impulse and religious motive. The most natural and logical teacher of sex and parenthood to the child is the parent. Class-room or group instruction with reference to direct human sex teaching in the public school cannot be given until: (a) enlightened public opinion recognizes sufficiently the necessity for such instruction, and exhibits confidence in the ability of the teachers to give the instruction needed; (b) teachers are intelligent, wise and tactful enough to give such instruction and guidance successfully. Comparatively few teachers to-day are capable of meeting the obligations involved in sex education. Such instruction should be given in universities, colleges, normal and private schools. The basis of successful sex teaching is companionship and confidence between the child and the parent. When class or group instruction is to be given to adolescents, it is important that the primary emphasis should be given to the presentation of facts and values, biologic, hygienic, sociologic, ethical and economic. More important than the knowledge of sex hygiene are the motives which will control thought and action.

DR. HELEN C. PUTNAM, Providence, R. I.: Educators are finding that well-directed correlation of human life with phenomena of growing things in school gardens and nature studies develops a wholesome mental attitude. The strategic years for making education for parenthood most effective are from 16 to 24.

Indirect Methods of Teaching Hygiene

DR. C. E. EHINGER, West Chester, Pa.: The fact that athletic success depends largely on physical fitness must be the keynote of hygienic teaching among young people, and this will be both the opportunity and the means by which the physical director shall meet the needs of his charges. I believe it is possible for the modern physical trainer to create a veritable atmosphere of health that will far exceed in value the results of the ordinary direct method of learning mere facts. All aids which make their appeal through avenues of recognized interest with a minimum of emphasis with the utilitarian aspects deserve to be developed. It should be understood that this does not contemplate the doing away with direct or formal method.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

DELAWARE: State Society and Homeopathic Examining Boards, Dover and Wilmington, June 18-20. Secretary of Medical Council, Dr. Henry W. Briggs, Wilmington.

ILLINOIS: State Armory, Springfield, June 13-15. Sec., Dr. James A. Egan.

IOWA: Capitol Building, Des Moines, June 13-15. Sec., Dr. Guilford H. Sumner, State House, Des Moines.

KENTUCKY: The Armory, Louisville, June 3-5. Sec., Dr. J. N. McCormack, Bowling Green.

LOUISIANA: Regular, Tulane University, New Orleans, May 30 to June 1. Sec., Dr. A. B. Brown, 108 Baronne Street.

MARYLAND: Regular, 1211 Cathedral Street, Baltimore, June 18. Sec., Dr. J. McP. Scott, 129 West Washington Street, Hagerstown; Homeopathic, St. Luke's Hospital, Baltimore, June 13-14. Sec., Dr. O. N. Duvall, 1326 North Mount Street, Baltimore.

MICHIGAN: Ann Arbor, June 11-13. Sec., Dr. B. D. Harlson, 504 Washington Arcade, Detroit.

MINNESOTA: State University, Minneapolis, June 4. Sec., Dr. Thomas S. McDavitt, Lowry Building, St. Paul.

MISSOURI: Gymnasium of the St. Louis University, St. Louis, June 24-26. Sec., Dr. Frank B. Hiller, State House, Jefferson City.

NEW JERSEY: State Capitol, Trenton, June 18. Sec., Dr. H. G. Norton.

NEW YORK: June 25-28. Chief of Examinations Division, Mr. Harlan H. Horner, Department of Education, Albany.

NORTH CAROLINA: Hendersonville, June 11. Sec., Dr. Benjamin K. Hays, Oxford.

OHIO: Columbus, June 18-21. Sec., Dr. George H. Matson, State House, Columbus.

PENNSYLVANIA: Philadelphia, Pittsburgh and Harrisburg, June 24-27. Secretary of Bureau of Medical Education and Licensure, Nathan C. Schaeffer, Harrisburg.

SOUTH CAROLINA: Columbia, June 11. Sec., Dr. A. Earle Boozer, 1806 Hampton Street.

TEXAS: Austin, June 27-29. Sec., Dr. J. D. Mitchell, Fort Worth.

VIRGINIA: Richmond, June 18-21. Sec., Dr. R. S. Martin, Stuart.

WISCONSIN: Milwaukee, May 28-30. Sec., Dr. J. M. Beffel, 3200 Clybourn Street.

WYOMING: State Capitol, Senate Room, Cheyenne, June 12-14. Sec., Dr. A. B. Tonkin, Riverton.

Idaho April Rport

Dr. O. J. Allen, secretary of the Idaho State Board of Medical Examiners, reports the written examination held at Boise, April 2-4, 1912. The number of subjects examined in was 11; total number of questions asked, 110; percentage required to pass, 75. The total number of candidates examined was 26 of whom 15 passed and 11 failed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
University of Colorado	(1911)	78
Northwestern Univ. Medical School. (1910) 75, 82;	(1911)	80, 85
College of Physicians and Surgeons, Chicago	(1904)	80
Kansas Medical College	(1902)	80
Tulane University of Louisiana	(1895)	78
University of Michigan, Dept. of Med. and Surg.	(1910)	84
University of Minnesota, College of Med. and Surg.	(1893)	80
Barnes Medical College	(1908)	76.7
Marion Sims-Beaumont Medical College	(1902)	75
Kansas City Medical College	(1897)	76.6
University of Buffalo	(1897)	78
Ohio-Miami Medical College	(1910)	84
FAILED		
Gross Medical College	(1899)	68
Chicago College of Medicine and Surgery	(1908)	70
Northwestern University Medical School	(1908)	74
State University of Iowa, Coll. of Med. (1896) 70;	(1898)	68.7
University of Kansas	(1912)	73.9
St. Louis College of Physicians and Surgeons	(1903)	60.7
Barnes Medical College	(1904)	69
Columbia University, College of Phys. and Surgs.	(1908)	73
University of Oregon	(1905)	56.6
Trinity Medical College, Toronto, Ontario	(1903)	71

The following questions were asked:

PATHOLOGY

1. Describe the morbid anatomy of arthritis deformans. 2. Describe varieties of bacteria. 3. Describe bacterins, serums and toxins. How are vaccines and serums prepared? 4. Describe gross and microscopic findings of lupus vulgaris. 5. Describe gross and microscopic appearance of gummata. 6. State blood-findings and describe morbid anatomy in pernicious anemia. 7. What changes take place in arteriosclerosis? 8. Define thrombosis, embolism, infarct, septicemia, pyemia, sapremia. 9. Describe gross and microscopic findings in acute yellow atrophy of the liver. 10. Describe the morbid anatomy of bronchopneumonia.

CHEMISTRY AND TOXICOLOGY

1. Give formula for: (a) mercuric chlorid; (b) mercurous chlorid; (c) cupric nitrate; (d) zinc sulphate; (e) boric acid. 2. Define and give examples of the terms: "normal salts," "acid salts" and "basic salts." Give the chemical composition of physiologic "normal salt

solution," with the approximate amounts of each ingredient. 3. Give the chemical composition (formula) and general properties of plaster-of-Paris. Explain in detail the process of setting of plaster. 4. What is the chemical formula for Labarraque's solution and on what does its disinfectant properties depend? 5. Name four normal, and give in detail tests for four abnormal, constituents of urine. 6. A. State the most common and convenient antidotes for poisoning with mineral acids. B. What course would you pursue when the poison to be antidoted is unknown? 7. Differentiate ptomains and leukomains. State symptoms and treatment for ptomain poisoning. 8. Explain in detail your method of performing an autopsy. 9. Give symptoms, treatment, lethal dose and post-mortem findings of methyl alcohol. 10. In a suspected case of arsenic poisoning, give the necessary steps required for post-mortem findings and give Marsh test for arsenic.

PHYSIOLOGY

1. Locate and give the general features of the spinal cord. Draw a diagram of a transverse section and describe any three tracts thereof. 2. What is meant by ascending and descending degeneration? 3. Define metabolism and give examples of diseased conditions where metabolic action is either absent or perverted. 4. Locate and describe the action of the muscle-band of His. 5. Describe the tissue proper of the suprarenals, give the course and termination of their nerve-supply and state what effect their removal produces in man and lower animals. 6. From what natural source of supply does the human body derive the greater part of its energy? 7. Which nerves supply the submaxillary gland? State the effect of the stimulation of each or either of these nerves on the gland. 8. Define reflex arc and give examples of reflex action. 9. Write a paragraph on the progressive effect of starvation on lower animals and man. A. What constant physical loss precedes death? 10. What is intrapulmonary pressure, intrathoracic or negative pressure?

DIAGNOSIS

1. Give diagnosis of Rocky Mountain "tick" fever. 2. Give differential diagnosis of chancre and chancroid. 3. How distinguish crisis from collapse in lobar pneumonia? 4. Of what import is the spleen in the diagnosis of febrile conditions? Give the topography of the spleen. 5. Describe four peculiar appearances of the tongue and give their significance in disease. 6. What is the diagnostic significance of dropsy? 7. Diagnosticate acute fibrinous pericarditis. 8. Make a differential diagnosis of pleuritic and pericardial effusion. 9. Make a diagnosis of aneurysm of the descending aorta. 10. Give the differential diagnosis between cerebrospinal meningitis and typhoid.

HYGIENE

1. Give etiologic factor, avenue of entrance, source of infection, mode of dissemination and preventive measures of the following diseases: pneumonia, diphtheria, erysipelas, small-pox, whooping-cough, rabies, scarlet fever, mumps. 2. What is the duration of life of the *Bacillus tuberculosis* in the dead body buried in the ground, kept in cold storage or pickled? A. How should such bodies be treated before burial? 3. Give, in detail, personal prophylaxis while attending a case of small-pox. 4. Which of the following diseases are due to animal parasites: glanders, influenza, yellow fever, tetanus, malignant edema, scabies, filaria, trichinalis, favus? 5. Name some of the principles to be observed in the inspection of meat for tuberculosis, when the whole carcass is condemned. 6. Has the State of Idaho any law making the testing of herds compulsory? 7. What effect has sewage on the oxygen of clean water? 8. Considering the relation of soil to disease, where would you find sterile soil? 9. Define hygiene, endemic, epidemic, parasite, animal, vegetable, hematozoon, helminthiases, piroplasmosis. 10. Describe a simple and practical method of window ventilation for schoolrooms. Make a drawing of the apparatus.

PRACTICE OF MEDICINE

1. What is an endemic disease? 2. In what conditions does subnormal temperature occur? 3. Differentiate between cerebral vomiting and gastric vomiting. 4. Give symptoms and treatment of Rocky Mountain "tick" fever. 5. In auscultation of healthy lungs what sound is heard and what is it technically termed? 6. Describe a typical case of laryngismus stridulus and give treatment. 7. Differentiate pleurisy and pneumonia. 8. Differentiate organic and functional heart murmur. 9. Define rubeola and describe its symptoms. 10. Differentiate diphtheria from follicular tonsillitis.

SURGERY

1. Give symptoms, diagnosis and treatment of fistulo in ano. 2. Give symptoms and differential diagnosis of tuberculous peritonitis. 3. Classify lieus and give symptoms, diagnosis and treatment of same. 4. Classify hernia. 5. Give surgical treatment of umbilical hernia. 6. Classify diverticula and give symptoms, diagnosis and treatment of Meckel's diverticulitis. 7. Give surgical treatment of hydrocele. 8. Give symptoms, diagnosis and treatment of fracture of neck of femur. 9. Give symptoms and differential diagnosis of renal tuberculosis. 10. Give symptoms, diagnosis and treatment of infection of the frontal sinus.

OBSTETRICS

1. Name and describe briefly the female genital organs. 2. Name and describe the important sutures and fontanelles of the fetal cranium. 3. Describe the fetal circulation. 4. Describe the development of the ovum and fetus at the end of the third month. 5. State the most important signs of pregnancy up to the fourth month. 6. Describe the three stages of normal labor; give management of each. 7. When would you use the forceps? Give technic of operation. 8. What is placenta prævia? Eclampsia? Give treatment of each. 9. Define and describe graafian follicle, corpus luteum, vitelline nucleus, umbilical vesicle, liquor amnii. 10. State etiology, diagnosis and management of a breech presentation.

GYNECOLOGY

1. Describe a case of carcinoma uteri. 2. Give the symptoms and treatment of acute pelvic peritonitis. 3. Describe the operation for ventral suspension of the uterus. 4. Give the etiology of metrorrhagia and menorrhagia. 5. Give the etiology of prolapsus uteri. 6. Describe a case of uterine fibroma. 7. Give the technic of a uterine curettage. 8. Give the symptomatology and treatment of acute urethritis. 9. Give the symptomatology and treatment of acute cystitis. 10. Give the diagnostic points of ectopic gestation.

MATERIA MEDICA AND THERAPEUTICS

1. Give the composition, dose and pharmaceutic name of: (a) Basham's mixture; (b) Dover's powders; (c) black draught. 2. Give the chemical name for: (a) Epsom salts; (b) Rochelle salts; (c) Glauber salts; (d) sweet spirit of niter. 3. Name the alkaloid and dose derived from scoparius, Calabar bean, aconite and veratrum. 4. Explain the equivalents in the metric system of the following weights: 1, 5, 10, 15.5 gr. and 1 ounce. 5. What is meant by: (a) endermic; (b) hypodermic and enepidermic administration of a remedy? 6. Mention three drugs used to accelerate the action of the heart and three drugs used to retard the action of the heart, and give dose of some official preparation of each. 7. Give the preparations of bismuth; how administered and indications for use. 8. Give the preparations and doses of mineral acids with their therapeutic effects. 9. Give dosage and indications for four remedies you use in jaundice, rheumatism and malaria. 10. State the name and dose of two drugs belonging to each of the following classes: (a) emetics; (b) diuretics; (c) diaphoretics; (d) cathartics. What is the dose of: (a) tinct. opii camph.; (b) tinct. opii deod.; (c) morphin sulphate; (d) codein phosphate?

MATERIA MEDICA, ECLECTIC

1. Give indications and adult dosage of aconite, belladonna, digitalis, pulsatilla, phytolacca. 2. State derivation, dose and properties of iodin, bismuth, ichthyol, phosphorus, chloral hydrate. 3. What is an alkaloid? Name five; give properties and dose of each. 4. Name five cardiac stimulants; give dose of each. 5. What are the properties of chionanthus, apocynum, passiflora, lobelia, sanguinaria. 6. Name five astringents; give dose and use of each. 7. State the medicinal properties of arsenic. Name two common preparations; give dose of each. 8. State the medicinal action of hyoscyamus; give dose. 9. Apomorphin hydrochlorid. What is its principal use? Give dose. 10. What are the properties of dioscorea? Colchicum? Give dose of each.

Minnesota April Report

Dr. Thomas S. McDavitt, secretary of the Minnesota State Board of Medical Examiners, reports the written examination held at Minneapolis, April 2-5, 1912. The number of subjects examined in was 11; total number of questions asked, 110; percentage required to pass, 75. The total number of candidates examined was 10 of whom 8 passed and 2 failed. Twenty-two candidates were licensed through reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Rush Medical College	(1912)	84.2, 86.2
College of Physicians and Surgeons, Chicago	(1911)	84.7
Johns Hopkins University	(1910)	88.7
College of Physicians and Surgeons, Boston	(1911)	79.1
University of Minnesota, College of Med. and Surg.	(1911)	88.1
Columbia University, College of Phys. and Surgs.	(1909)	88.8
McGill University, Quebec	(1905)	89

FAILED

Woman's Medical College of Pennsylvania	(1909)	70.4
Medical College of South Carolina	(1908)*	....

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Denver Homeopathic College	(1899)	Colorado
American Medical Missionary College	(1904)	Michigan
Bennett Medical College	(1906)	Illinois
Northwestern University Medical School, (1898) Wisconsin; (1909) North Dakota; (1910, 2) Illinois; (1911) Illinois		
College of Phys. and Surgeons, Chicago	(1908)	Illinois
Rush Medical College	(1911)	Illinois
Indiana Medical College, Coll. of Phys. and Surgs.	(1907)	Indiana
Keokuk Medical College, College of Physicians and Surgeons, Wisconsin; (1905) Iowa.	(1900)	
University of Kansas	(1906)	Nebraska
University of Michigan, Dept. of Med. and Surg.	(1911)	Michigan
Creighton Medical College	(1911)	Nebraska
Marquette University, Milwaukee	(1911, 4)	Wisconsin
Wisconsin College of Physicians and Surgeons	(1911)	Wisconsin

* Failed to pass practical examination.

Book Notices

THE INHERITANCE OF ACQUIRED CHARACTERS. A Hypothesis of Heredity, Development and Assimilation. By Eugenio Rignano. Authorized English Translation by Basil C. H. Harvey, Assistant Professor of Anatomy, University of Chicago. With an Appendix on the Mnemonic Origin and Nature of the Affective or Natural Tendencies. Cloth. Price, $3 net. Pp. 413. Chicago: The Open Court Publishing Co., 1911.

In this book the author suggests a mechanism whereby the inheritance of acquired characters may be effected on the physical basis of assimilation, cell-division and the biogenetic law of recapitulation in ontogeny. In this respect he places himself in direct opposition to Weismann, who denies the possibility of the transmission of acquired characters. The author defends the Lamarckian view, to support which he

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brings forth the following theories of his own: 1. All the manifold physical, chemical, morphologic and physiologic variations, which can appear in the most different parts of the organism, are to be ascribed to specific alterations of a single form of energy, so that the latter appears, as it were, the common denominator for the variations that are quite unlike in nature and whose combination or separation is thus permitted as often as required. 2. The determinative influence which the germ-substance in its totality exerts on the soma cannot be limited to the first remnant of the first cleavage of the egg, but must persist throughout the whole of ontogeny up to the adult condition, so that the germinal substance never, as it were, loses touch with the soma, but rather remains in a continual state of reciprocal action and reaction with it. 3. The influence exerted by the soma in this way must be reversible, that is, the germ-substance must be influenced in such a way that it can call forth again at the proper moment, at the numberless different points of the soma of the new organism, all the same respective, special, somatic conditions by whose complex modes of being the germ-substance itself was already influenced in the present organism in so special a way. The theory as a whole is called by the author the centro-epigenetic hypothesis. He is firmly convinced that all living substance possesses the faculty of accumulating and returning the different particular specificities of generic nervous energy, which constitute the essence of all vital phenomena whatever. Thus he explains in detail the most fundamental biologic phenomena, such as histologic specialization of cells which respond always in their customary specific manner, no matter how unusual the stimulus which excites them, to the inheritance of acquired characters, from the evolution of species and the repetition of phylogeny by ontogeny, direct consequences of that inheritance, to mnemonic phenomena properly so-called.

After discussing the various theories advanced to explain heredity, which he finds extremely illogical, he goes into detail in elucidating his own views, which are very interesting. In his concluding summary he states that he was led to the theory of centro-epigenesis by a study of the fundamental law of the repetition of phylogeny by ontogeny with all its mediate and immediate results. His second hypothesis, according to which each specific nervous current deposits a very definite substance which, in its turn, is capable of provoking again the same specificity of current as that by which it was itself deposited, has enabled him with the aid of the centro-epigenetic theory to explain directly the inheritance of acquired characters. The third hypothesis, according to which vital phenomena consist essentially of an intranuclear oscillating nervous discharge—together with the second hypothesis of specific accumulators—explains to the author the fundamental property of the life-phenomenon, which consists in assimilation. These are ingenious theories worthy of study. If proved to be true, they may throw a flood of light on the transmission of disease-tendencies, the mechanism of which is still obscure. Physicians who interest themselves in the why and the wherefore of their provisionally accepted scientific dogmas will find this book replete with new ideas, as herein new vistas are opened to the medical imagination in relation to the fundamental principles of heredity.

THE CRIMINAL AND THE COMMUNITY. By James Devon, Medical Officer of H. M. Prison at Glasgow, with an Introduction by Prof. A. F. Murison, LL.D. Cloth. Price, $1.75 net. Pp. 348. New York: John Lane Company, 1912.

During a period of sixteen years the author of this book has been in close intercourse with criminals of all classes; he thus gained a splendid insight into the criminal's make-up; similarly for many years he has taken an active interest in sociologic work. Both of these facts entitle him to a respectful hearing on the subject of the criminal in relation to society. Under the captions, "The Study of the Criminal," "Common Factors in the Causation of Crime," and the "Treatment of the Criminal," he handles his subject with intrepidity and utter disregard of old traditions. After a most scorching criticism of society, which in his opinion is responsible not only for creating the criminal, but also for preventing him from ever again becoming a useful citizen, he proposes several practical reforms. For the first offender, commonly a victim of "accidental misconduct," he proposes a system of probation, similar to the one in vogue in this country for juvenile offenders. He aims to give the individual an opportunity to reform when reformation is still possible, that is, before he has become a prison associate of the "hardened criminal." For the habitual offender who is frequently returned to prison the author favors permanent withdrawal of actual freedom, but he vigorously protests against treating him as a noxious animal; being nothing more nor less than a diseased and dangerous man, he should be treated as such. He further advocates the advisability of liberating prisoners when responsible citizens offer to become their guardians for stated periods of time. Devon is opposed to capital punishment, which he characterizes as an outstanding example of the application of the "retributory principle." In his opinion there is no real difference between the killing of an incorrigible criminal and the administration of a fatal dose of medicine to a patient suffering from incurable disease, both of which acts are contrary to every principle of humanity and ethics. Throughout the book a spirit of liberality is displayed, betokening strong sympathy for those who are "down and out," a characteristic often found in those who not only study criminal anthropology but also the environmental antecedents of criminals. That the author is thoroughly familiar with the sociologic aspect of his theme is apparent on every page. Those who have studied the natural history of crime and criminals must arrive at conclusions similar to those reached by the author of this book, namely, that the criminal represents an exerescence of a faulty social growth and that surgery is as futile in the application to the body politic as it is useless in the treatment of psychic disorders. In both sociology and medicine prevention is the remedy of the future. For the present the above-mentioned palliative measures as outlined by the author should commend themselves to society. Much good might be accomplished if every judge and legislator received a copy of this book. Physicians generally have long been sympathetic toward the views as expressed in this well-written volume, which is deserving of wide circulation.

NEPHRITIS: AN EXPERIMENTAL AND CRITICAL STUDY OF ITS NATURE, CAUSE AND THE PRINCIPLES OF ITS RELIEF. By Martin H. Fischer. The 1911 Cartwright Prize Essay of the Association of the Alumni of the College of Physicians and Surgeons, Medical Department of Columbia University, New York. First Edition. Cloth. Price, $2.50. Pp. 201. New York: John Wiley & Sons, 1912.

This is a book full of fresh, original thought. It is a special plea for the author's theory of nephritis, being an extension of his theory of edema, which has been favorably received by pathologists, though still under judgment.

The author does not consider in detail the histology of the kidneys, but rather their physiochemical structure. He believes that "all the changes that characterize nephritis are due to a common cause—the abnormal production or accumulation of acids in the cells of the kidneys" and gives the details of numerous experiments to prove this. The albumin of albuminuria, he believes, comes from the urinary membranes, not from the blood, that is, it is due to a solution of the solid colloid which makes the membranes. He shows what is the effect of acids and alkalies on solid colloids, such as fibrin and gelatin and later on the tissues.

From his experiments the author concludes that (1) an abnormal production or accumulation of acids in the kidney, or conditions predisposing thereto, exists in every case of albuminuria; and conversely that (2) whenever there is an increased production or accumulation of acids in the kidney it results in albuminuria; and (3) that if we decrease the "solubility" of various protein gels (fibrin and gelatin) in an acid medium we can decrease albuminuria.

He explains his views that all forms of nephritis are manifestations of one pathologic process. He describes fully experiments by which he has produced the histologic phenomena of nephritis in bits of normal kidney placed in weak acid solution. Under these circumstances he shows that the kidney substance swells, that it takes up water, becomes granular,

dissolves in part, making the surrounding fluid albuminous and produces casts.

He does not think that hemorrhage into the kidney is due to stomata in the blood-vessels or breaks in continuity of the vessels, but to a softening of the colloid walls of capillaries and the squeezing through these softened cells of the blood-corpuscles. It seems strange that, if this is so, in the countless sections of kidneys showing hemorrhage, cells containing or partly containing corpuscles in process of passing through have not been observed often. The author's experiments on the production of all kinds of casts in pieces of normal kidney are most interesting and instructive.

The secretion of water he looks on as an active process and not due only or largely to mechanical changes in blood-pressure, etc. The secretion of so-called solids he explains in these words: "After the water is secreted I hold that all the constituents which characterize it as urine come to be added to it, in its course through the uriniferous tubules, by a process of leaching out of the dissolved substances present in the kidney-cells. But in this process of leaching out not all the constituents present in the protoplasm leave the cells in which they are originally present with the same ease. Depending on the character of the dissolved substance, and the state of the protoplasm as to lipoid content, colloidal state, and chemical composition, the water present in the uriniferous tubule may come to take up the dissolved substance to an extent which allows it ultimately to be found here in a lower concentration than in the kidney-cells, in the same concentration, or in a greater one. It is all a matter of equilibrium. The (normal) leaching out is 'selective,' or, to put it biologically, the 'secretion' of the dissolved substances is selective."

"But this leaching out of dissolved substances from the kidney is only one-half of the process of urinary secretion. The other half is the process of the absorption of dissolved substances from the blood by the kidney-cells preparatory to their secretion into the lumen of the uriniferous tubules."

The results of treatment planned to neutralize acid in the kidneys obtained by various clinicians are fully described. Considering the author's views as to the origin of nephritis, his plan of treatment is to counteract the ill effects of acids by alkalies and other salts which interfere with the action of acids, even when they do not neutralize them.

He regards sodium chlorid as harmless and even beneficial in nephritis and edema and describes experiments which lead him to these conclusions, while he barely refers to opposing views and does not describe or discuss the experiments of Marie and others, which show that nephritis can be produced by injections of sodium chlorid and that an existing nephritis can be aggravated and edema produced by them. There must be a fault in the experiments, observations or reasoning of one or the other observer on this point.

Clinicians who have applied Fischer's method of treatment have given sodium carbonate and sodium chlorid in solution by mouth, hypodermically, intravenously and by persistent drop instillation per rectum, according as in individual cases it was more or less urgent to render the system alkaline. The results are described as excellent. Alkalies and salts in nephritis do not make a new treatment, but the intravenous administration and continuous instillation is new and the results are striking.

Though the author's plea for his theory of nephritis is not convincing, it is suggestive and compels consideration and more study.

A SYSTEM OF PSYCHOLOGY. By Knight Dunlap, Associate Professor of Psychology in the Johns Hopkins University. Cloth. Price, $1.25. Pp. 368. New York: Charles Scribner's Sons, 1912.

This volume from the psychologic laboratories of the Johns Hopkins University is conspicuous in its differences from the near-new psychologies, psychotherapies, abnormal, pathologic, aberrant and bizarre contributions to the abused poetry of pseudopsychology. Its three hundred odd pages, interesting and bulging with the facts and the distinctions between a scientific nomenclature and street terminology, will give agreeable pause to purveyors of the mystic.

To him who seriously reads Dunlap's words it will be at once evident that there is no more rapid road to a knowledge of true psychology than there is to chemistry, electricity, biology, physiology or surgery. No mere jabbering of formulas or flapdoodle that can be memorized by rote between the rising gong and the after-breakfast newspaper will answer for a summary of real psychologic problems.

Dunlap minces no words in exposing the numerous and popular psychologic fallacies, generally accepted as settled facts. He launches into his subject by saying exactly what psychology is not. Then he takes a fling at the "sensationalists" and "motor" schools of psychology, and challenges Watson, Angell, Titchener, Külpe and others to "show him" that there are no such things as relations—those nine misty conceptions of Aristotle's ten categories.

One of the "ultimate principles" of Dunlap's thesis is the vigorous maintenance of the doctrine (?) that there are four elementary kinds of experience content, to wit: (1) sensations, (2) relations, (3) feelings and (4) images. We acknowledge an inability to include relations as an element of content. It would seem that the canons of Aristotle, Plato, and the others, who held, as Dunlap holds, that difference, similarity, sequence and other factors called relations are independent elements of content, are justly disputed by the "motorists," "sensationalists," and others, at least with the Scotch verdict "not proven." To us they seem to be included in imagery. Ontogenetically, they seem to be matters of recall and recognition.

It is impossible, here, to single out all of the notable contributions made to psychology in the twenty chapters of this work, but special mention must be made of the detailed and scientific discussion in the section on the character of duration, of "protensity" and "extensity" of musical sounds. This chapter may serve as a model for all instructors.

Modern psychology affirms a "soul" in spite of the denial from many commanding points of vantage. But, says Dunlap, we must bear in mind that we can know nothing about the ego and that there is nothing to be known about it. The ego, or soul, is merely a point of view, "as soon as it is described, it becomes no longer the point of view to which consciousness refers."

Of all the pleasures to be harvested from this book, none is superior to that obtained in reading the chapter on the occult. With the fictitious dignity and mock modesty of telepathy, mysticism, materializations, slate-writing, table-thumbing, clairvoyance, spiritism, psychology does not deal. With the experience of those mediums, often psychics and paranoiacs who do these stunts, psychology must deal.

A system of psychology as complete, yet as brief, as this, is indispensable for the medical man.

THE KEY TO SEX CONTROL, or the Cellular Determination of Sex and the Physiologic Laws Which Govern Its Control. By Percy John McElrath, M.D. Cloth. Price, $3. Pp. 232. New York: Published by the Author, 1911.

This purports to be a learned consideration of the organs of sex and the cells producing offspring with especial reference to sex determination. The author describes a part of spermatozoa which others have not seen, the "sex membrane." This, he asserts, holds the nucleus or head of the spermatozoon as if in a cup. It covers more or less of the head according as the spermatozoon is young, or of hours or days of age. When the sex-membrane covers less than one-half of the nucleus of the spermatozoon "the tail and all enter into the cytoplasm of the ovum and a male is produced." When, however, the sex membrane covers more than one-half of the nucleus of the spermatozoon it becomes detached when it passes through the cytoplasm of the ovum and only the nucleus enters the latter. Under these circumstances a female is produced. The author gives instructions as to when insemination must take place to produce male and female offspring. Every statement in this book is dogmatic. This cock-sureness may impress a non-scientific reader with confidence but it appears far from convincing to a medical man. The book contains numerous illustrations, anatomic and embryologic, and also a portrait of the author facing the title page. The book is doubtless written to sell to laymen who are interested in the problem, rather than to physicians. We cannot commend it as being of any scientific value.

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Medicolegal

Skill Required of Physicians and Surgeons in Country and City—What Covered by the Word "Physicians"—Liability for Amputation Without Authority—Rules Concerning Damages

(*McBride vs. Huckins et al. (N. H.), 81 Atl. R. 528*)

The Supreme Court of New Hampshire holds that there was error in the trial court's ruling in this case on the skill required of physicians and surgeons which made it necessary that a verdict for the plaintiff be set aside. The trial court refused to instruct the jury: "If you find that the defendants possessed such skill and learning as is ordinarily possessed by physicians practicing in the same line in similar localities, and that in treating and diagnosing the plaintiff's case they used ordinary care in exercising such learning and skill, notwithstanding you find that the arm might have been saved, your verdict should be for the defendants." Indeed, the jury were instructed, in substance, that the defendants were bound, under their contract of employment, to possess that degree of skill in surgery in the treatment of the plaintiff's injured arm which is ordinarily possessed by those engaged in the same profession. The skill of the average physician and surgeon was made the standard or test by which the jury were to determine the material question whether the defendants had the knowledge, experience, and skill which the law requires a person to have, who represents himself to be a qualified surgeon, and assumes on request to render surgical assistance in a particular case.

The Supreme Court says that, although the word "physicians" was alone used in the requested instruction, it was evident that it was intended to include those members of the profession who practiced surgery in connection with the general treatment of diseases, and it limited the inquiry to surgeons or physicians whose practice included cases requiring surgical attention, like the plaintiff's. "Practicing in the same line in similar localities" meant, as applied to this case, the practice of surgery in country towns whose general characteristics, as to location, size, industries, and population, were substantially similar to those where the defendants assumed to practice.

The question raised was not a merely fanciful or academic one. Expert proficiency in performing difficult surgical operations is not ordinarily possessed by the country doctor, for the reason that such cases do not often occur in his practice. His opportunities for experience and observation are much more limited than those of physicians and surgeons practicing in large cities, where surgical operations are of frequent occurrence. While his professional education and knowledge of the books may be extensive, he is necessarily defective in that expert skill which is only produced by practical experience. Devoting himself to the ordinary practice of a rural community, he is necessarily deprived of that acquired skill which he would have attained, if he had practiced his profession in a large and densely populated community. The degree of skill, therefore, which he can reasonably be assumed to possess, as a general rule, must be measured and determined by a due consideration of the limited opportunities afforded in the same or similar communities, and not by the greater and dissimilar opportunities existing in larger and different communities. It would be unjust to hold him to that degree of professional ability which his environment prevents him from possessing. On the other hand, it would be equally unjust to the plaintiff in a malpractice case to permit the jury to measure the defendants' skill by the average of professional ability found to exist in other communities affording less opportunity for practice in a given medical line than the defendants' locality affords. As in the former case the standard is too high, in the latter it would be too low. In neither case would it work out substantial justice.

It might be claimed that all inequality would be avoided by adopting the rule announced by the trial court in the charge: That the defendants were bound to possess "that reasonable degree of learning, skill, and experience which is ordinarily possessed by those engaged in the same business or profession"; or that "the duty which the law imposed on them was that they did possess the learning, skill and experience of the average physician and surgeon engaged in the profession of medicine." But it is apparent that on principle this is an unsatisfactory and impracticable test. It restricts the jury to no locality in the attempt to find the average skill of the profession in surgery. It is impracticable because of the difficulty, not to say impossibility, of determining the average skill of the medical profession as a body in the treatment of a given case. In view of the facts that different schools of medicine often employ radically different methods of treating the same disease, that the practice followed in one school would often be strong evidence of negligence, if resorted to by a member of another school, and that practitioners in one locality have opportunities for experience in treating certain diseases and bodily injuries which are almost entirely wanting in other localities, the extreme difficulty of ascertaining the average skill possessed by all physicians is apparent. Such a rule is unlimited, and, because it is unlimited, it is too indiscriminate to be of any real service to the jury in ascertaining whether a defendant possesses the average skill required. The field of inquiry must be restricted. Some reasonable territorial limit must be recognized, if the law is to furnish a rule that is just to the parties and useful to the triers of the fact.

But, if the jury is instructed that the average skill and ability of surgeons in active practice in communities affording opportunities for professional observation and experience of a character similar to those afforded by the town or district where the defendant practices his profession is the standard, it is apparent that justice to both parties under their contract will be secure. The implied agreement of the surgeon is that his surgical knowledge and experience is at least equal to that of the average surgeon practicing in the same or similar localities, not to that of the average of surgeons practicing in dissimilar localities. It must be assumed that the parties had this distinction in mind; and it must also be assumed, in any reasonable construction of their contract, that they did not have in mind a general average of professional ability, in regard to which neither could have had any definite information. They did not make a contract, a material part of which neither contemplated nor understood, and which it would be impracticable for a jury to apply.

The court cannot take judicial notice of whether the average skill of the profession as a body is higher or lower than that of physicians practicing in certain localities and declare it to be one way or the other.

The argument that the word "physicians," as used in the requested instruction was too indefinite, and might include quacks, empirics, and imposters, whose evident incompetence would lower the standard sought, might have some legitimate bearing, if it were found that the jury would probably give that word such an unreasonable meaning. But the phrase "physicians practicing" in a community evidently means, in this connection, physicians whose learning, experience and practice in that community entitle them to public confidence. It does not mean all persons who assume to treat diseases or personal injuries, but only such as are ordinarily recognized as reputable physicians.

On a motion for rehearing, which is denied, the court says that the evidence tended to show that the plaintiff, having received a severe injury to his arm, requested the defendants to examine it and do what was necessary to save the arm, but not to amputate it. He was put under the influence of an anesthetic, and the defendants, on examining the wound amputated the arm. They were chargeable with the performance of a surgeon's duty when they undertook a surgeon's task. If they did not have the requisite skill for the performance of that duty, and injury resulted to the plaintiff, the question of their liability would be determined against them.

Then, if the jury found that the defendants deliberately and intentionally disregarded the unequivocal instruction of the plaintiff, while he was unconscious, it could not be doubted that they acted maliciously. Amputating the arm under such circumstances might show a wanton and contemptuous disre-

gard and abuse of the professional confidence which the plaintiff reposed in the defendants. It would be a material circumstance characterizing their act; and, on authority and principle, it might have an important bearing on the amount of damages the plaintiff ought to receive and the defendants ought to pay.

If, in connection with, or in addition to, this element of damage, the jury believed that the defendants did not have the skill imposed on them by the law, and that they knew that they were incompetent to do what they wrongfully assumed to do—that is, to decide whether amputation was necessary, and whether they should perform the operation— it cannot be doubted that the amount of the verdict would be materially increased thereby.

Charitable Hospital Not Liable for Negligence of Nurse as to Sponges

(Taylor vs. Protestant Hospital Association (Ohio), 96 N. E. R. 1089)

The Supreme Court of Ohio affirms a judgment for the defendant in this suit brought to recover damages for the death of a woman patient alleged to be due to a nurse having negligently failed to keep a proper count of the sponges which had been used in an operation, by reason of which negligence one of them had been left in the body of the patient. The woman was a pay patient who was charged $10 a week for board, lodging and nursing, and it was contended that what is known as the legal doctrine of respondeat superior, the principal or master must answer for the acts of his agent or servant, applied, and should be enforced, notwithstanding the character of the corporation or the nature of its undertakings, and that, having accepted the woman as a pay patient, a contractual relation existed between the parties, which imposed obligations on the hospital association different from those to one who did not sustain such relation. But the court holds that a public charitable hospital, organized as such and open to all persons, although conducted under private management, is not liable for injuries to a patient of the hospital, resulting from the negligence of a nurse employed by it. The fact that a public charitable hospital receives pay from a patient for lodging and care does not affect its character as a "charitable institution," nor its rights or liabilities as such in relation to such a patient. This court is not disposed to lend support to the tendency in some cases to question the fundamental soundness of the doctrine of respondeat superior. Neither does it consider justified the attempted extension in this case of the rule to matters different from others, and who do not come within its reason, so as to hold a public charity involving no private profit responsible for the negligence of servants employed solely for a public use and a public benefit. Public policy should and does encourage enterprises with the aims and purposes of the defendant hospital association, and requires that they should be exempted from the operation of the rule.

Licensing of Maternity Hospitals by Boards of Health

(Adleman vs. Board of Health of Hartford (Conn.), 81 Atl. R. 1055)

The Supreme Court of Errors of Connecticut holds that the plaintiff was not entitled to a writ of mandamus to compel the issuance to him of a license to keep a maternity hospital, there being no allegation that he was a suitable person to be licensed, or that the board in refusing him a license did not exercise a reasonable discretion. He claimed that he was entitled to a license under section 4670 of the general statutes of Connecticut, which provides that: "No person shall keep a maternity hospital or lying-in place unless he has previously obtained a license therefor duly issued by the mayor or board of health of the city or health officer of the town wherein such maternity hospital or lying-in place is situated." His claim was that the statute gives the board of health no discretion in the matter, but that it is bound to give a license to every applicant, regardless of character or qualifications. But the court does not agree with him.

The statute in terms, the court says, imposes no duty on the board of health to license any one to conduct such a hospital or place. Any duty which is thereby imposed on the board is an implied one. Whether such a duty is implied and, if so, the nature, extent, and limitations of the duty are to be determined from the act itself, its language, and the purpose intended to be accomplished by it. The provisions of the act, subsequent to the portion above quoted, show that the purpose of the act was to regulate the business of keeping such places as are therein described. Such business, when properly conducted, is legitimate and of public benefit; but that it affords opportunity for the commission and successful concealment of crime is apparent. The act contemplates this and provides for the visitation and inspection of such places, when licensed, for the purpose of detecting the improper treatment of any child, and the discovery and removal of any article which the visiting authority thinks presents evidence of any crime having been committed therein. It is not to be presumed that the legislature, contemplating, as it evidently did, the danger and possibility of such places being used for the perpetration and concealment of crime, intended, impliedly imposing on boards of health the duty of "duly licensing" persons to carry on the business, that they shall license any and every person who shall make application for such a license. It must have been intended that the board should have some discretion in granting such license, and that the character and moral fitness of the applicant should be considered before granting a license. It is to be implied from the fact that all persons are forbidden to pursue this occupation, unless they have procured a license from the board of health, and from the other provisions of the act referred to, that it is the duty of that board to issue licenses to suitable persons to conduct the business in suitable places; that it does not lie within the absolute discretion of the board to grant or withhold a license as it shall see fit, but that it shall exercise a reasonable discretion in the performance of such duty.

Condition of Mental System One of Opinion Only

(Odom vs. State (Ala.), 56 So. R. 913)

The Supreme Court of Alabama says that it is true that the apparent condition of the physical system, as to health or sickness, is a matter of fact, to which a witness may testify. But the apparent condition of the mental system as to sanity or insanity is not a matter of fact merely, and involves essentially the inference and opinion of the witness. In this case the witness testified to the appearance of the defendant, saying that he was inclined to be melancholy, and seemed wild and haggard. That was as far as he could rightfully go. It may be that there is an "insane look" habitual to insane persons, the presence of which in particular cases is capable of discernment and possessed of probative value. If so, it is a matter for experts, and not for ordinary witnesses.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Bulletin of Johns Hopkins Hospital, Baltimore

May, XXIII, No. 255, pp. 127-158

1 *Effect of Extensive Resections of Small Intestine. J. M. Flint, New Haven, Conn.
2 *Behavior of Blood Platelets in Toxemias and Hemorrhagic Disease; Preliminary Report. W. W. Duke, Kansas City, Mo.
3 Alveolar Tumor of Carotid Gland with Sarcomatous Transformation. P. G. Woolley and F. Fee, Cincinnati.

1. **Effect of Extensive Resections of Small Intestine.**—In all, sixteen operations on dogs are recorded by Flint, two of them on dogs from which a portion of the gut had already been removed. Of the sixteen operations on fourteen dogs, six dogs died from all causes, making a total mortality of 37 per cent. In no case, however, says Flint, could the resection of the intestine *per se* be looked on as the direct or primary cause of death, although it might naturally be considered a contributory factor in reducing the resistance by causing profound metabolic disturbances, as was evidenced by the extreme diarrhea and loss of weight. Three died from infec-

tion resulting from a breaking down of the abdominal wound; one died from ileus in consequence of adhesions about the intestinal suture; one died from pneumonia, and the last from inanition, induced by metabolism experiments, after living 213 days.

Flint says that as much as 50 per cent. of the total small intestine in dogs may be removed without fatal results. The animals may gradually return to a condition of practically normal weight and metabolism when maintained on a favorable diet under good conditions. Resections of 75 per cent., and even more, of the total small intestine may be survived, but such animals are not liable to show a true recovery, i. e., a return to normal weight with the establishment of a good compensatory process. At first, the animals suffer from a severe diarrhea, ravenous thirst and appetite, and loss of weight, from which they gradually recover, until conditions may return to those of a normal animal. They remain, however, extremely sensitive to unfavorable conditions of diet and living.

Metabolic studies on such animals show that there is a marked increase in the excretion of the nitrogenous, fatty and carbohydrate elements of the food. The elimination may reach 66 per cent. of the diet content. After compensation is established, on a rich, easily assimilated diet, digestion goes on as in a normal dog, except for an increase in the amount of intestinal putrefaction, as indicated by the amount of indican in the urine. An increase in the amount of fats in the food may lead to an increased elimination of nitrogen and fats to a point about 25 per cent. above normal. The carbohydrates, on the contrary, are absorbed to a degree considerably above normal after the compensation is established. The compensatory process consists in a hypertrophy as well as hyperplasia of the remaining portion of the small intestine. There is no regeneration of either the villi or crypts. Computation makes it probable that in favorable cases approximately the original epithelial area of the intestine is restored by the hypertrophic process.

As in animals, about 50 per cent. of the small intestine may be resected in man without much danger of serious consequences in the majority of cases. The resection of smaller amounts may, however, be followed by severe metabolic disturbances, and even inanition and death. Human cases behave in general like the animals. They show similar metabolic disturbances. In one case there was distinct evidence of a compensatory process. No regeneration or hypertrophy has ever been reported in a human case. There are over fifty-eight cases reported in the literature in which over 200 cm. of the small intestine have been resected. The mortality is 16 per cent. which is probably much lower than it should be, owing to the greater probability of successful cases finding their way into the literature. The metabolic disturbances in human cases bear no definite relationship to the amount of small intestine resected. In five resections of over 400 cm. the patients have recovered, while death from inanition has resulted from the resection of 284, 289, 300 and 350 cm., respectively. Profound digestive disturbances have resulted from the removal of 192 and 204 cm. of ileum. In human cases, factors, like difficulties in measurement, the pathologic condition, the total length of the intestine, and the resistance of the patient undoubtedly modify the result, and explain the apparent discrepancies between the amount of intestine resected and the subsequent metabolic disturbances.

The prognosis in human cases should be guarded. Apparently successful resections may, for lack of suitable compensation, succumb ultimately to a slow process of inanition. The experiments and the series of human cases emphasize the specific function of the three segments of the gastro-intestinal tract. Neither the stomach nor colon is able to compensate for the loss of large portions of the small intestine. Resection of the human intestine is almost never an operation of choice. The surgical rule has been, and will continue to be, a resection of the minimum amount allowed by the pathologic conditions. From the metabolic studies, it would seem wise to give these patients a rich and easily assimilated diet, poor in fats and relatively rich in carbohydrates.

2. Behavior of Blood Platelets.—Variation in the platelet count in many diseases is believed by Duke to be largely the effect of toxins, some of which in small doses increase the count and in large doses decrease it. When the count descends below a level of about sixty thousand there may be an abnormal tendency to bleed. When it descends below about ten thousand, this tendency is always present, and when below one thousand, is present in its most severe form.

Journal of South Carolina Medical Association, Seneca

April, VIII, No. 4, pp. 93-120

4 Medical Profession and Public Health. J. W. Jervey, Greenville.
5 Congenital Dilatation of Colon, Megacolon or Hirschsprung's Disease. C. M. Rees, Charleston.
6 Plea for More Conservative Surgery of Ovary. G. H. Bunch, Columbia.
7 Diagnosis of Typhoid. W. T. Gibson, Batesburg.

Journal of Cutaneous Diseases, New York

May, XXX, No. 5, pp. 235-316

8 Xanthoma Tuberosum Multiplex. S. Pollitzer and U. J. Wile, New York.
9 Precancerous Dermatoses: Two Cases of Chronic Atypical Epithelial Proliferation. J. T. Bowen, Boston.
10 *Wassermann Reaction in Sixty-one Cases of Syphilis Treated with Salvarsan. M. F. Engman and R. Buhman, St. Louis.

10. Syphilis Treated With Salvarsan.—Of the sixty-one patients seen by the authors, thirty-two received salvarsan alone. Of these, nine, or 28 per cent. gave a negative Wassermann reaction; 23, or 72 per cent. gave a positive reaction. Of a group of persistent positive reactions, five had two doses and one three doses of salvarsan. Of the sixty-one patients, twenty-nine received mercury injections, following the salvarsan. Of these, fourteen, or 48 per cent. gave a negative Wassermann reaction. Of the twenty-nine, four gave a persistent, positive reaction, after two doses of salvarsan and two courses of mercury respectively. Seven of the sixty-one patients had two doses of salvarsan alone and of these, only two became negative, or 28 per cent., while five remained positive, all of which were severe infections. In the earlier syphilides salvarsan was used alone in six cases, with the result of 33 per cent. negative Wassermann reactions. In the late syphilides, salvarsan used alone, in twenty-six cases, gave 26 per cent. of negative reactions. The Junkermann method was used in forty-three cases and gave negative reactions in sixteen, or 37 per cent. The intravenous method was used in sixteen cases, with no negative reaction after a single dose. Two negative reactions were obtained after two successive doses; five remained positive after two doses and the balance received mercury.

Wisconsin Medical Journal, Milwaukee

April, X, No. 11, pp. 619-684

11 *Relative Value of Diuretics. A. S. Lovenhart, Madison.
12 Human Eugenics. F. L. Drake, Madison.
13 Intraperitoneal Infections. W. E. Fairchild, Green Bay.
14 Surgical Importance of Certain Vestigial Structures, with Report of Case of Persistent Ductus Thyreoglossus. C. M. Echols, Milwaukee.
15 Gastroptosis from Radiographic Standpoint. W. F. Hilger, Milwaukee.
16 Improved Mouth-Gag for Tonsillectomy. H. B. Hitz, Milwaukee.
17 Sacro-Iliac Strain; Case Reports. E. Evans, La Crosse.

11. Abstracted in THE JOURNAL, July 22, 1911, p. 315.

Journal of Biological Chemistry, Baltimore

May, XI, No. 4, pp. 267-411

18 Hydrolysis of Casein by Trypsin. E. H. Walters, Berkeley, Cal.
19 Refractive Indices of Solutions of Certain Proteins: Salmine. T. B. Robertson, Berkeley, Cal.
20 *Effect of Lecithin on Fermentation of Sugar by Bacteria. A. A. Epstein and H. Olsan, New York.
21 Balance of Acid-Forming and Base-Forming Elements in Foods; Its Relation to Ammonia Metabolism. H. C. Sherman and A. O. Gettler, New York.
22 Isolation of Oöcytase, Fertilizing and Cytolyzing Substance in Mammalian Blood-Sera. T. B. Robertson, Berkeley, Cal.
23 Combined Action of Muscle Plasma and Pancreas Extract on Some Mono- and Disaccharids. P. A. Levene and G. M. Meyer, New York.
24 Action of Tisssue Extracts Containing Nucleosidase on *A* and *B* Methylpentosides. P. A. Levene, W. A. Jacobs and F. Medigreceanu, New York.
25 Absorption of Metallic Salts by Fish in Their Natural Habitat. G. F. White and A. Thomas, Woods Hole, Mass.
26 Determination of Aluminum in Feces. C. L. A. Schmidt and D. R. Hoagland, Philadelphia.
27 Researches on Purins: 2,8-Dioxy-6,9-Dimethylprin and 2,8-Dioxy-1-Methyl-Purin. C. O. Johns, New Haven, Conn.

28 *Chemical Anaylsis of Ash of Smooth Muscle. E. B. Meigs and L. A. Ryan, Philadelphia.
29 Toxicity of Sugar Solutions on Fundulus and Apparent Antagonism Between Salts and Sugar. J. Loeb, New York.
30 Carbohydrate Esters of Higher Fatty Acids. W. R. Bloor, St. Louis.
31 *Fat Absorption. W. R. Bloor, St. Louis.
32 Echinochrome, Red Substance in Sea Urchins. J. F. McClendon.
33 Action of Various Tissues and Tissue Juices on Glucose. P. A. Levene and G. M. Meyer, New York.
34 Action of Leukocytes on Glucose. P. A. Levene and G. M. Meyer, New York.

20. **Effect of Lecithin on Fermentation.**—The authors found that the tendency of lecithin is to increase rather than to decrease fermentation.

28. **Ash of Smooth Muscle.**—According to Meigs and Ryan most of the water of the smooth muscle fibers is held by the colloids of the living tissue as organic water. Most of the potassium, phosphorus, sulphur and magnesium, which appear in the ash of smooth muscle, are present in the living tissue in a non-diffusible form.

31. **Fat Absorption.**—The results of Bloor's experiments show quite conclusively that none of the isomannid esters had passed unchanged into the chyle, although considerable quantities had been digested and absorbed. This result is in entire agreement with the findings of Frank with the ethyl esters of the fatty acids and emphasizes the probability that readily saponifiable fatty acid esters do not escape saponification under the favorable conditions in the normal intestine (excess of lipase, rapid removal of the products). Whether fatty substances of any kind may pass into the chyle unchanged remains to be proven.

New Mexico Medical Journal, Las Cruces

April, VIII, No. 1, pp. 215-238

35 Catholic Doctrine on "Interruption of Pregnancy." W. R. Tipton, East Las Vegas.
36 Treatment of Pelvic Inflammation. L. G. Rice, Albuquerque.
37 Practical Points in Railway Surgery, Including First Aid Preparation for Transporting and Emergency Bags. R. J. Thompson, Tucumcari.
38 Enlarged Tonsils and Why They Should Be Removed. H. T. Bailey, Courtland, Ariz.

Southern Medical Journal, Nashville, Tenn.

May, V, No. 5, pp. 217-290

39 Peritonitis. R. A. Barr, Nashville.
40 *Exploratory Laparotomy. C. W. Allen, New Orleans.
41 Ligature Material and After-Treatment of Surgical Cases. H. T. Inge, Mobile, Ala.
42 Local Anesthesia in Hernia Operations. W. T. Henderson, Mobile, Ala.
43 *Surgery in Epilepsy. W. A. Ryan, Nashville.
44 Surgical Treatment of Congenital Hypertrophic Pyloric Stenosis, with Report of Case. G. E. Gavin, Mobile, Ala.
45 *Dietetic Treatment of High Blood-Pressure. A. Eustis, New Orleans.
46 Cooperation as Factor in Prevention of Typhoid. L. L. Lumsden, Washington, D. C.
47 Control of Typhoid by Vaccination. J. J. Peterson, Mobile, Ala.
48 Glaucoma; Its More Recent Pathology and Treatment. G. C. Savage, Nashville.
49 Tonsillectomy as Performed at Charity Hospital, New Orleans. H. Dupuy, New Orleans.
50 Sympathetic Ophthalmia. U. S. Bird, Tampa, Fla.
51 Operative Treatment of Benign New Growths of Larynx. R. McKinney, Memphis, Tenn.
52 Plea for Earlier Diagnosis of Cancer of Uterus. F. W. Griffith, Asheville, N. C.

40. **Exploratory Laparotomy.**—In the case of the individual of previous good health, or possibly with earlier history of gastric ulcer, who complains of persistent or repeated abdominal disturbance not readily accounted for and when any suspicion can reasonably exist regarding a possible malignant process, Allen advises laparotomy.

43. **Surgery in Epilepsy.**—Bryan would impress on the patient and his relatives that when he has undergone an operation for epilepsy the operation is only a necessary step in a long course of supervision. It should be understood, he says, that surgery may put him in line for a cure, but that surgery alone often fails where it should not, and fails because of the too great solicitude of an anxious mother, a foolhardy persistence of the patient in forbidden paths, or the want of a distinct and intelligent guide to direct the whole after-course. This plan should be followed out just as fully in the cases that have had only a few seizures as in the older cases, and it can in most cases not be done so long as the patient returns from the operating room to his old associates and environment. No one plan for relief can be accepted as a standard. There is no question as to the chief features of the procedure in those cases which show distinct lesions on approach to the brain, namely, their removal or correction as far as possible. Bryan thinks there can be little question, too, about the correctness of the plan for excision of the brain centers of those muscles or muscle groups which habitually are affected at the beginning of the seizures, although it is not directed toward the foundation of the trouble in the sensory centers through whose perverted activity the motor manifestations are stimulated into activity.

45. **Dietetic Treatment of High Blood-Pressure.**—Eustis regards high blood-pressure as due to a toxemia and experimental results obtained by him he believes explain the good results of a low protein diet and stimulation of elimination in the treatment of this condition. In cases of high blood-pressure elimination by catharsis and copious administration of water is indicated unless the heart muscle is not functioning properly. A diet composed of substances which yield little or no tyrosin on digestion is indicated.

Yale Medical Journal, New Haven, Conn.

March, XCIII, No. 7, pp. 289-324

53 Clinical Tests of Kidney Function. T. N. Hepburn, Hartford, Conn.
54 Aids to Diagnosis in Otology and Their Clinical Significance. J. F. McKernon, New York.
55 Importance of a Medical Library to Medical Profession. J. W. Farlow, Boston.

Vermont Medical Monthly, Burlington

April 15, XVIII, No. 4, pp. 79-104

56 Radiculitis. A. H. Bellerose, Rutland.
57 Osteoplasty and Bone Transplantation in Pott's Disease of Spine. F. H. Albee, New York.

Boston Medical and Surgical Journal

May 9, CLXVI, No. 19, pp. 687-722

58 *Outdoor Treatment of Puerperal Infection. E. B. Young and J. T. Williams, Boston.
59 Influence of Antivivisection on Character. W. W. Keen, Philadelphia.
60 *Technic of Gastro-Intestinal Therapy. M. V. Tyrode, Boston.
61 *Intensity of Acidity of Urine in Children. G. King, Fall River, Mass.
62 Respective Significance of Rest and Exercise in Treatment of Phthisis. N. B. Burns, North Reading, Mass.
63 Method of Recording Exercise Data in Sanitarium for Consumptives. C. C. MacCorkson and N. B. Burns, North Reading, Mass.
64 *Value of "Russo's Typhoid Test." A. L. Grover, Iowa City, Iowa.

58. This article was abstracted in THE JOURNAL, March 30, p. 975. The sentence which read "Antistreptococcic serum and vaccines have proved of much value," should have read "Antistreptococcic serum and vaccines have *not* proved of much value."

60. **Gastro-Intestinal Therapy.**—It has been Tyrode's experience to have hardly ever seen a patient with organic or functional gastro-intestinal disturbances who has not suffered from a certain amount of nervous fatigue and irritability. Thus in the large majority of gastro-intestinal patients some drug is necessary to give nervous relaxation, and the one which Tyrode has found most valuable is potassium bromid. He uses it in doses sufficient to produce proper relaxation, and the amount varies greatly with different patients. He usually begins with about 1 gm. or 15 gr. three times daily and either increases or decreases the dose as the symptoms warrant. Always give it after meals combined with an alkali, and usually followed by a full glass of milk. Given in this way, he practically never has seen any symptoms of gastric irritation or intolerance so frequently mentioned by other authors. He obviates to a great extent the skin eruptions by having the patient consume sufficient liquids in the shape of water, either plain or Vichy. This favors the excretion through the kidneys and thus saves the skin. Morphin is used only in some very painful acute affections, as gall-stones or intestinal spasm in acute dysentery and proctitis. Tyrode uses various combinations of salts, especially of sodium chlorid, sodium bicarbonate, sodium phosphate and sodium sulphate; first to cleanse the stomach and upper intestinal tract of mucus, and, according to the concentration and time of administration, either to increase or decrease gastric and intestinal secretions;

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second, to increase the peristalsis of the stomach and intestines and to aid evacuation; third, as injections to cleanse the colon and to promote healing of catarrhal processes. One of the salts of bismuth, chiefly the subnitrate and subcarbonate, is employed for astringent purposes both in the stomach and intestines, as in cases of erosions, ulcers and enterocolitis with diarrhea. To change the bacteriologic state of the gastro-intestinal tract, Tyrode relies much more on diet than on drugs; nevertheless, he occasionally uses in cases of excessive protein putrefaction such drugs as the salicylate and naphthalate of bismuth, also thymol. He practically never uses laxative pills, and the only vegetable laxative which he rarely introduces in small amounts, mixed with magnesia and bismuth or other substances, is rhubarb.

61. **Intensity of Acidity of Urine in Children.**—In King's series of fourteen cases of enuresis, all had a highly acid urine, i. e., from fourteen to thirty times as acid as the average normal for a child, and none were alkaline, none showed any evidence of malformations or local inflammatory affections, all urines were normal in all respects save for a high acidity, the specific gravity varying from 1007 to 1016 in all cases save one, where it was 1020 and 1025 on two examinations (fluids having been limited). Practically all had previously had the ordinary treatment with no definite results. All of these patients were put on potassium citrate, from 3 to 8 gr., four times a day, with definite improvement in all but one case; and this in a boy of 13 who was a masturbator and showed no improvement of either condition.

64. **Russo's Typhoid Test.**—Grover's conclusions are that although the test may be demonstrated in the urine of a large proportion of the typhoid cases, yet it may be demonstrated in such a large proportion of the urine of normal individuals that it is not a test that has any specific meaning or value as to the presence or absence of typhoid. When compared with the reliability of a blood-culture it is worthless.

St. Paul Medical Journal, Minn.

May, XIV, No. 5, pp. 239-286

65 Treatment of Uterine Prolapse. W. A. Dennis, St. Paul.
66 School Health. E. A. Meyerding, St. Paul.
67 Bacillus Aerogenes Capsulatus. J. W. Little, Minneapolis.
68 Trachoma. J. H. Stewart, St. Paul.

Annals of Surgery, Philadelphia

May, LV, No. 5, pp. 641-783

69 Estimation of Vital Resistance of Patient with Reference to Possibility of Recovery. J. C. Bloodgood, Baltimore.
70 *Wiring of Otherwise Inoperable Aneurysms. J. M. T. Finney, Baltimore.
71 Operation for Pott's Disease of Spine. R. A. Hibbs, New York.
72 Clinical Features and Treatment of Acute Perforating Gastric and Duodenal Ulcer. E. Eliot, New York.
73 *Intestinal Obstruction Due to Gall-Stones. F. Martin, Baltimore.
74 *New Decompression Operation. W. H. Hudson, Atlanta, Ga.
75 Tuberculous Rheumatism (Poncet). H. H. M. Lyle, New York.

70. **Wiring of Aneurysms.**—The ultimate results of this operation are necessarily somewhat disappointing when one considers the small percentage of cures. Some observers insist that no patients are permanently cured. This, however, seems to Finney too extreme a statement. A small number of Finney's patients have died as the immediate result of the operation. A larger number have died from remote results of the operation. The vast majority have been improved by it. Improvement has lasted from a few days to a term of years. A few patients, he believes, can truthfully be said to have been completely cured. In several of the cases, gelatin injections were administered in addition to the wiring, with apparently good effect. Finney emphasizes that it is of the utmost importance that these patients should be kept as nearly as possible in a state of physiologic rest for a term of months after the wiring. In this way only will the best results be secured. In three of his cases, after the complete subsidence of all symptoms referable to the aneurysm, the patients, because of this fact, and in spite of orders to the contrary, dated the return of their trouble immediately following some unusual effort.

Of Finney's twenty-three cases, so far as he knows, only two patients are still living, one after nearly three years, the other not quite a year. Both had aneurysms of the thoracic aorta. All his patients were males, mostly young men, only two being over fifty years of age. One-half of them gave a history of lues and one who denied it had a positive Wassermann reaction. Over 25 per cent. admitted using alcohol to excess. In three instances, the trouble was of traumatic origin. In one case, the recurrence dated from a fall from a height, the patient catching himself with the hand of the affected side. This case was of special interest because Finney resected the greater part of the first and second portions of the sternum and the first, second and third ribs on one side in order to expose and examine the aneurysmal sac, so close was it to the heart, before daring to insert the wire. It is an interesting fact that at first practically all of their cases were aneurysms of the abdominal aorta. In recent years, the reverse has been true and they are now almost all of the thoracic variety. The latter are more amenable to treatment by this method, owing to their greater accessibility and because a general anesthetic is not necessary. On the whole, Finney says the results of this operation, when one considers the absolutely hopeless condition of the patient under any other method of treatment, would seem to justify its employment in every case where it is not otherwise contraindicated.

73. **Intestinal Obstruction Due to Gall-Stones.**—Martin emphasizes this point, that the toxemia in these cases is the chief factor to be combated, and this can be done best by thoroughly washing out the stomach before operation, thoroughly draining the distended loop above the obstruction at the time of the operation, and giving freely and abundantly salt solution both at the time of the operation and afterward, intravenous if necessary, or intracellular in all cases, along with salt solution by rectum. He believes that if these steps are followed, more lives will be saved, even if the operation is resorted to late. Three successful cases are reported.

74. **New Decompression Operation.**—To obviate the local damage sustained by the brain in being forced out of a circumscribed opening in the skull, and to prevent a later hernia of the brain and the possible tearing asunder of the scalp wound and to allow the restoration of the calvarium should a cure be established, a new method of decompressing the brain has been carefully worked out by Hudson. In those cases of unlocalizable brain tumors in which the decompression is necessary, the area exposed is the entire posterior portion of the brain, so that the entire hemisphere may be displaced backward, thus avoiding localized damages. The lower limit of this flap is the lower limit of the cerebral hemisphere behind; its upper limit is where the skull begins to curve in a downward direction. The fissures and convolutions of the brain are not considered. If the growth has been localized in the motor region and not removed, the second flap is made over the posterior portion of the brain, thereby making two flaps. The same process is applied to the left side of the brain, the greatest care being used not to injure the cortex.

The ordinary decompression operation over the posterior region of the hemisphere is done. Hudson's usual osteoplastic flap with short central bevel is rapidly made. Two openings are made in the free border of the flap, ¾ inch apart. These openings are united by the smallest size Gigli wire saw, making a cut on a bevel. The other holes are united by Hudson's two-hand, channel-making forceps. Opposite the primary trephin openings the skull is firmly grasped with the drill guide and small ⅛-inch openings made for the silver wire sutures. The flap is now broken back by inserting elevators under its anterior and posterior borders. Silver wire of eighteen or twenty gauge is twisted carefully but quickly into the openings opposite the bone flap. These wires are left 6 or 8 inches long so as to be readily inserted into the drill holes in the bone flap. The dura is now opened, leaving a broad margin around the edge by an M- or W-shaped incision, great care being taken not to injure the cortex. The silver wires are now inserted into the drill holes in the bone flap and twisted, allowing about half an inch of slack. Each of the wires is then caught with artery forceps and twisted down until the bone flap fits snugly over the brain. The scalp is then closed carefully with interrupted fine silk sutures. The fitting back

accurately of the bone flap prevents edema of the brain, and yet all the benefits of a decompression operation are secured. Should the tumor continue to grow, the bone flap is gradually lifted as the pressure straightens out the loop in the silver wire. Should pressure symptoms reappear and the bone flap not be lifting, a sharp stylet may be inserted through a cocainized point in the scalp, and the bone flap given a lift. This may be continued until all the loops in the silver sutures have been straightened out.

Buffalo (N. Y.) Medical Journal

May, LXVII, No. 10, pp. 539-600

76 Retroperitoneal Tumors and Intraligamentary Pregnancy. J. M. Lee, Rochester, N. Y.
77 Dysmenorrhea. S. Y. Howell, Buffalo.
78 Cases Treated with Gonococcus Vaccine. J. G. W. Knoll, Buffalo.
79 New Departure in Medical Expert Matter. S. W. Little, Rochester, N. Y.
80 Serotherapy. W. S. Garlock, Little Falls, N. Y.
81 Law as It Relates to Physicians and Buffalo Health Department. F. E. Fronszak, Buffalo.

Medical Record, New York

May 4, LXXXI, No. 18, pp. 837-880

82 Clinical Indications for Direct Transfusion of Blood with Author's Technic. A. L. Soresi, New York.
83 Treatment of Intranasal Conditions. A. E. Schmitt, New York.
84 Scientific System of Administering Ether. R. C. Coburn, New York.
85 Death from Renal Adenosarcoma. V. C. Pedersen, New York.
86 Juxta-Epiphyseal Fracture of Upper End of Humerus. F. H. Albee, New York.

May 11, LXXXI, No. 19, pp. 881-926

87 Some Clinical Features of Scarlatina. H. W. Berg, New York.
88 *Creosote and Calcium Medication in Respiratory Affections in Children and in Pulmonary Tuberculosis. I. Van Gieson and H. L. Lynah, New York.
89 Oxaluria Dolorosa: Contribution to Genito-Urinary Surgery. B. G. R. Williams, Paris, Ill.
90 Mortality of Indifference. C. N. Haskell, Bridgeport, Conn.
91 *Basic Cause of Flatfoot. J. R. Mitchell, Fort Worth, Tex.
92 How May We Betteir Condition of Growing Child? E. M. Hill, New York.

88. **Creosote and Calcium Medication.**—From a review of his experimental results on guinea-pigs the senior author feels justified in considering the propriety of administering creosote in human beings not only internally but hypodermatically and intravenously as well. Hypodermatic injections were given twice a week in six cases of pulmonary tuberculosis. These patients, if only transiently, did show improvement in hacking cough, sleep and general condition. The injections were, however, painful. At the fifth or sixth injection the whole set of patients developed superficial and benign abscesses, readily healing, but terminating the treatment. These observations on the intravenous injections in man are not given with any idea of furnishing any results in the treatment of tuberculosis. These were merely trials to see if the injections could be given and tolerated. Whether, if they were given systematically and continuously in suitable cases the effect would have been beneficial, has not been determined. Under the systematic continued and persistent regime of calcium assimilation Van Gieson has seen a number of his patients improve, undergo an exudation or partial consolidation in the lung, which then resolving would appear to contribute to the walling off and closing of the lesions. Hand in hand with this course of events the sputum clears up of tubercle bacilli which finally disappear and the patients are discharged with healed pulmonary tuberculosis. In the face of this evidence, studied directly and conscientiously, he says he can no longer hesitate to believe that the great natural healing process in tuberculosis which rescues eight or nine-tenths of mankind, can be imitated and placed under human control under the guidance of a definite scientific principle.

91. **Basic Cause of Flatfoot.**—The theory is advanced by Mitchell that the basic cause of flatfoot is a slow absorption of calcium salts from the bones of the foot. Gravity directs a relatively larger amount of blood with greater force to the foot than to any other part of the body. This would subject the foot to increased absorption of salts. Further, the muscles of the legs, with intermittent activity, impel a vigorous venous current, which in turn induces an active circulation through the bones of the foot. The more active the circulation of the blood, the more active its powers of absorption. If the basic cause of flatfoot be lime absorption, then its consideration teaches that a cure in the late stage is impossible. But if flatfoot cannot be cured, Mitchell advises a simple means for its prevention. Such a method would require a diet rich in lime salts, as contained in milk, eggs, fruits and vegetables; the avoidance of decalcifying acid food, and the drinking of water known to contain the physiologic minerals.

Archives of Ophthalmology, New Rochelle, N. Y.

May, XLI, No. 3, pp. 209-322

93 Case of Vessel-Formation in Vitreous. J. Dunn, Richmond, Va.
94 Skiascopic Test; New and Original Explanation. R. G. Waddy, Oxford, England.
95 Eye Syndrome of Dementia Præcox. H. H. Tyson and L. P. Clark, New York.
96 Some Ocular Manifestations of Syphilis and Parasyphilis of Nervous System. G. H. Knapp, Cincinnati.
97 Tuberculosis of Conjunctiva and Sclera Following Removal of Pigmented Papilloma of Conjunctiva. L. C. Peter, Philadelphia.
98 Ocular Muscle-Tucking or Shortening Operation. G. A. Suffa, Boston.
99 Pathology of Lens. C. Hess, Würzburg.
100 Successful Method of Corneal Transplantation. W. Löhlein, Griefswald.

New York Medical Journal

May 4, XCV, No. 18, pp. 913-968

101 Orthopedic Surgeons of Latter Half of Nineteenth Century. V. P. Gibney, New York.
102 Salvarsan and Wassermann Test in Syphilis. M. L. Heidingsfeld, Cincinnati.
103 Diagnosis of Prolonged Fevers. M. Manges, New York.
104 Relation of Physician to Public. I. S. Wile, New York.
105 Treatment of Tuberculosis in New York City. N. N. Stark, New York.
106 *Deep Petrissage of Abdomen as Aid to Diagnosis of Tapeworm. R. J. Cyriax, London, England.
107 *Intestinal Obstruction, Treated with Phenolphthalein and Calomel. P. H. Markley, Camden, N. J.
108 Suggestion in Treatment of Acute Intestinal Obstruction with Impairment of Intestinal Vitality. V. Knott, Sioux City, Iowa.
109 Bacterial Therapy. W. O. Wetmore, New York.

May 11, XCV, No. 19, pp. 969-1020

110 Fundamentals of Freudian Psychology. W. A. White, Washington, D. C.
111 Widening the Pylorus Without Operation. M. Einhorn, New York.
112 Differential Diagnosis of Pancreatic Affections and Gall-Stones. J. F. Erdman, New York.
113 *Liability of Physicians for Accidents Occurring During Anesthesia. A. C. Vandiver, New York.
114 *Experimental Proof of Identity of Brill's Disease and Typhus Fever. J. F. Anderson and J. Goldberger, Washington, D. C.
115 Bacteria in Fresh Eggs. R. C. Rosenberger, Philadelphia.
116 Von Hansemann's Plea for Conditional Reasoning in Medicine. C. F. Bolduan, New York.
117 *Surgical Anesthesia. R. H. Ferguson, East Orange, N. J.
118 Case of Hysteria in Girl of 13 Years, Illustrating Mechanism of an Hallucination. R. Reed, Cincinnati.

106. **Diagnosis of Tapeworm.**—By deep abdominal pétrissage Cyriax means a series of circular movements executed in the direction of the large intestine with sufficient energy to cause a thorough kneading of the abdominal contents. In carrying it out, it is essential that the abdominal parietes and the fingers of the operator move as one over the underlying viscera, otherwise the process is resolved into a mere superficial effleurage, which hardly influences the viscera. It is not necessary for the pétrissage to be executed very hard in order to achieve the desired end; and unless the technic is defective, it should cause no pain. When properly performed it presumably effects the dislodging of the progiottides in two ways—by promoting peristalsis and by mechanically separating segments of the distal end of the parasite by tearing through their attachments. Of these two actions, the latter is probably by far the most important. The increased peristalsis seems to act only as an adjuvant in expelling the separated segments, and probably no intensity of it can actually dislodge the head of the worm; nor does it seem possible to reach the point of achieving this by the merely mechanical effect of the pétrissage. The latter is, therefore, only a means of diagnosis as regards tapeworm infection, and cannot replace the usual curative treatment.

107. **Intestinal Obstruction.**—A procedure which Knott has found of benefit in cases of acute intestinal obstruction, when at operation the vitality of the bowel has been found so impaired as to demand resection, is the following: A large Moynihan or Doyen forceps, with rubber-coated blades, has been applied to bowel and mesentery, well beyond the diseased area. The ends of the segment of intestine to be removed

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are now occluded by any crushing forceps, at least one inch from the rubber-coated clamps. The intestine and mesentery, between the rubber-coated clamps, are now rapidly cut away, the line of incision being about half an inch from the jaws of the clamps. The cut edges of the mesentery are now quickly caught with a continuous lock stitch of catgut, and both ends of intestine drawn up and stitched into the abdominal incision, care being taken so to close the peritoneum as to permit of no leakage into the abdomen. The rubber-coated clamps are then removed. No tubes of any kind are inserted into the bowel and a large dressing is applied. The dressing must be frequently changed, depending on the amount of drainage from the gut. Should all go well, some ten days or even longer afterward, depending on circumstances, the open ends of the intestine are liberated from the wound, a lateral anastomosis is made, and the abdomen closed.

The time for making the secondary operation must be decided in each case by the surgeon himself, but as a general rule it should be done as soon as the condition of the patient will permit, particularly when the line of section has been through the small intestine. Should the small intestine have been opened high up, the patient may be fed by means of a tube introduced into the distal segment of bowel.

113. **Liability of Physicians.**—In the opinion of Vandiver, anesthesia should be administered to patients only by registered physicians, and the consent of the patient in all instances should be obtained for the administration of the anesthesia. The delegation of the function of the administration of anesthesia to trained nurses should be deprecated and discouraged. The liability of the physician if negligent is fixed and certain. The negligence of his agent, registered physician or other person, is imputable to the physician and renders him also primarily liable.

114. **Brill's Disease.**—The authors tested the susceptibility to Mexican typhus of seven rhesus monkeys that had recovered from an attack of Brill's disease, and the susceptibility to Brill's disease of ten monkeys that they had reason to believe were resistant to Mexican typhus, with the following result: Of the seven Brill's immune monkeys, in not one did typhus develop, although of nine healthy controls not one has failed to react, the reactions being well marked in seven, and abortive in two. Of the ten typhus immune animals, not one has developed Brill's disease, whereas of eight monkeys inoculated as controls, only one has failed to react. They believe that these results justify the conclusion that an attack of Brill's disease confers an immunity to subsequent infection with Mexican typhus, and, conversely, that an attack of typhus confers immunity to subsequent infection with Brill's disease. In other words, Brill's disease, so called, and typhus fever are identical.

117. **Surgical Anesthesia.**—In summing up the lessons to be learned from a study of the influence of alcohol, chloroform and ether on the power of the body to resist disease the following points are emphasized by Ferguson:

1. Do not give alcohol in the infectious diseases. It is particularly bad in pneumonia and septic conditions.
2. For surgical anesthesia administer at any one time, during the anesthesia, as little of the anesthetic as possible.
3. Never use alcohol as a stimulant during or after an anesthesia if the opsonic power of the blood is of any importance.
4. Make the anesthesia as short as possible. Begin to administer the anesthetic as late as circumstances permit and remove it just as soon as the operation will allow.
5. Use only a strictly pure ether or chloroform lest impurities in the anesthetic augment the unavoidable depression.
6. Take special precautions for asepsis and antisepsis in all operations of any length. A very slight infection, which would not manifest itself under ordinary circumstances, may develop into a serious condition after an anesthesia because of the impaired resistance.
7. Inject six ounces of olive oil high up into the rectum in all septic cases, and in all others in which the patient's power to resist infection may be called into play.
8. Remember that time is an important factor in restoring the opsonic index; therefore do not delay the administration of the oil.
9. In injecting the oil "make haste slowly." The sudden deposit of six ounces of oil may cause it to be ejected and all will have to be done over again. Give a slow, steady, continuous injection every time.
10. Use only pure, limpid olive oil. Absorption, to do the most good, must take place comparatively quickly. Therefore, take care to have at hand an olive oil free from stearins and other heavy oils, free fatty acids and other impurities.
11. If there is the slightest question whether to inject the oil or not, inject it. It can never do harm. Be on the safe side.

Iowa Medical Journal, Des Moines

April 15, XVIII, No. 10, pp. 457-506

119 Economic Waste from Disability and Deaths Due to Preventable Diseases. A. E. Kepford.
120 Obstruction of Common Bile Duct Due to Cancer of Ampulla. J. W. Richards, Mechanicsville.
121 Pathologic Physiology of Heart. W. L. Mendenhall, Des Moines.

Ophthalmic Record, Chicago

April, XXI, No. 4, pp. 171-218

122 Convenient Attachment for De-Zeng Electric Headlight. J. R. Newcomb, Indianapolis, Ind.
123 Ophthalmologic Observation of Charles Dickens During His Visit to America. S. H. Brown, Philadelphia.

Annals of Ophthalmology, St. Louis

April, XXI, No. 2, pp. 209-444

124 Organ of Melanotic Pigment in Eye of Vertebrate Embryos, and in Sarcoma of Chorioid. A. v. Szily, Freiburg.
125 New Hypophyseal Syndrome: Hypophyseal Nanism. R. Burnier, Paris.
126 Circumscribed Orbital Edema from Frontal Sinusitis. W. C. Posey, Philadelphia.
127 Shrunken Globe Enveloping Unusually Large Fragment of Steel. W. C. Posey, Philadelphia.
128 Migraine with Ring Scotoma. W. Zentmayer, Philadelphia.
129 Postmydriatic Examination. W. M. Richards, New York.

Louisville (Ky.) Monthly Journal of Medicine and Surgery

May, XVIII, No. 12, pp. 353-384

130 Hypophysis Cerebri: Its Functions and Diseases, with Report of Case of Hypophyseal Tumor. J. A. Flexner, Louisville, Ky.
131 Congenital Laryngeal Stridor; Report of Case. J. M. Ray, Louisville, Ky.
132 Urgent Surgical Lesions Within Abdomen; Special Reference to Diagnosis. H. H. Grant, Louisville, Ky.

Denver Medical Times and Utah Medical Journal

May, XXXI, No. 11, pp. 449-496

133 Knee-Joint Tuberculosis in Adult. L. W. Ely, Denver.
134 Prevention and Control of Tuberculosis. G. W. Holden, Denver.
135 Oral Hygiene. R. P. McGee, Denver.
136 Chiro-Practic—What Is It? J. M. Shaller, Denver.
137 Personal Effort in Preservation of Health. O. E. Coleman, Castle Dale, Utah.
138 Sterilization of Unfit. G. H. Bogart, Paris, Ill.

Illinois Medical Journal, Springfield

May, XXI, No. 5, pp. 537-672

139 Alexander Hugh Ferguson, the Surgeon. A. J. Ochsner, Chicago.
140 Personal Characteristics of Dr. Alexander Hugh Ferguson. E. F. Wells, Chicago.
141 Acute Poliomyelitis: Clinical Aspects, with Special Reference to Rarer Lesions. J. H. Hess, Chicago.
142 Surgical Aspects of Poliomyelitis. D. D. Lewis, Chicago.
143 Pathology of Poliomyelitis. J. W. Jobling, Chicago.
144 Clinical Aspect and Treatment of Acute Anterior Poliomyelitis. C. M. Jacobs, Chicago.
145 Eugenics: Plea for Better Race. E. A. Foley, Jacksonville.
146 Infant-Feeding. W. D. Chapman, Silvis.
147 Russo Reaction in Typhoid. W. H. Gambill and M. C. Hawley, Watertown.
148 Local Surgical Procedures in Non-Tuberculous Joint Diseases. E. H. Ochsner, Chicago.
149 Commercial Aspect of Medical Profession. W. R. Allison, Peoria.

West Virginia Medical Journal, Wheeling

May, VI, No. 11, pp. 363-398

150 Poliomyelitis. L. D. Wilson, Wheeling.
151 Meningitis: Special Reference to Diagnosis. A. O. Aßbin, Charles Town.
152 Importance of Early Diagnosis in Middle-Ear Disease in Children. G. A. Aschman, Wheeling.
153 Infant-Feeding. T. H. Elliott, Gauley Bridge.
154 Importance of Maintaining Normal Mouth Conditions in Children. J. C. Archer, Wheeling.
155 Strabismus in Children. J. L. Dickey, Wheeling.
156 Hernia in Children. R. J. Reed, Wheeling.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

Indian Medical Gazette, Calcutta

April, XLVII, No. 4, pp. 129-168

1 *Estimation of Specific Gravity of Blood and Its Value in Treatment of Cholera. L. Rogers.
2 *New Method of Intraperitoneal Administration of Rogers' Hypertonic Solution in Cholera. T. H. Bishop.
3 Cholera in Campbell Hospital, 1911. L. Ganguly.
4 Treatment of Early Stages of Senile Cataract. H. Smith.
5 Black-Water Fever in Burma. L. G. Fink.
6 Case of Suppurating Ovarian Dermoid Cyst. H. C. Keates.
7 Cure of Hydrocele by Lymphangioplasty (Internal Drainage). K. K. Chatterji.
8 *Multiple Cysticercus Cellulosæ. T. V. Campbell and T. T. Thomson.
9 Treatment of Sprains, Strains and Rupture of Muscles by Strapping, Movement and Rubbing. C. P. O. Shunker.
10 Myositis Ossificans. C. A. Nanjapa.

1. Specific Gravity of Blood.—The specific gravity of the blood is regarded by Rogers as a guide in diagnosis and treatment of cholera.

2. Saline Injections in Cholera.—The same general indications noted by Rogers for the intravenous injection are accepted by Bishop for the intraperitoneal. It is noted that a blood-pressure which falls below 70 degrees continues to fall rapidly, as a rule, to between 30 and 40, so that preparations for the injection are made as soon as the blood-pressure is discovered to be below the first figure. The instrument used by Bishop for taking blood-pressure observations is Leonard Hill's new type of sphygmometer. It is portable and easily manipulated by one person. For the actual puncture of the abdominal wall he uses a trocar-cannula specially made for him. The site of the puncture, just below and a little to one side of the umbilicus (where the peritoneum is attached to the posterior surface of the anterior abdominal wall) is marked by the application of a small pure phenol swab and the tissues grasped with both hands by an assistant on the other side of the selected spot, which is, while being drawn quite taut, also brought into the middle line immediately below the umbilicus. The previously sterilized trocar-cannula is thrust boldly through and the trocar extracted. The rubber tubing leading from the reservoir is slipped on to the cannula and well over its shoulder. The hypertonic saline solution is then allowed to run in at the rate of about a pint in four or five minutes, the temperature being regulated in the same way as for the intravenous method. The amount required cannot be indicated by the improvement in the blood-pressure observable, as such improvement is not immediate, but a fair clinical indication of when to stop is when the patient experiences a desire to micturate. Micturition, though attempted, does not ensue at this point but generally coincides with the return of the blood-pressure in the radial artery some few hours later. The one apparent risk, that of injuring the intestine during the process of puncturing is, Bishop is convinced, apparent only.

8. Multiple Cysticercus Cellulosæ.—About six years ago the authors' patient noticed a small tumor over his left eyebrow, later another to the left side of his nose; still later on neck and all over the body. For one year before admission patient had had a cough with purulent sputum and irregular fever. On examination of his chest, they found extensive tuberculous disease of both lungs. His sputum contained numerous tubercle bacilli. His face and body presented a remarkable appearance. Numerous small subcutaneous tumors could be seen, particularly about the neck and chest, part of back, shoulders, upper and forearms, and thighs; in the pectoral muscles on both sides, the tumors were very numerous. The tumors were freely movable and felt firm and were about the size of a large grape. The patient gradually got worse and after a severe attack of diarrhea died. Numerous cysts were found subcutaneously all over the back and part of chest and abdominal wall; also over the deltoids and in upper and forearms and thighs; a few were found in the neck and face. Numerous intramuscular cysts were found in the pectoral muscles. The right lung was very adherent to the chest wall all round, the left at the apex. There was tuberculous thickening of both apices and an abscess in the right apex. No cysts were found in the lungs. On the surface of the heart two small cysts were found, one on the interventricular septum and the other on the left ventricle near the apex. In the left kidney there were three cysts, one on the convex and two others on the inner border. One cyst was found near the hylum of the spleen, no other cysts were found in the abdominal cavity. The cranial cavity was not examined. The patient had not allowed the removal of a cyst for examination, so a positive diagnosis of cysticercus cellulosæ was not made till he died. When the authors examined the contents of one of the cysts under the microscope, the head of a tapeworm with a rostellum consisting of two rows of hooklets could be seen.

Journal of Tropical Medicine and Hygiene, London

April 15, XV, No. 8, pp. 113-128

11 Case of Pemphigus Contagiosus. P. H. Macdonald.
12 Sleeping Sickness in Gambia. E. Hopkinson.
13 Pigmented Macula on Tongue, Gums and Palate. R. H. Castor.

British Medical Journal, London

April 27, I, No. 2678, pp. 933-988

14 *Unicellular Cancer: Parasite of Cancer. Sir H. Butlin.
15 *Mechanism and Treatment of Shock. H. T. Gray and L. Parsons.
16 *Method of Estimating Strength of a Vaccine by Standard Bacterial Emulsion. J. A. B. Hicks.
17 Case of Tuberculous Polyserositis. G. J. Conford.
18 Diagnosis and Treatment of Sciatica. W. B. Watson.
19 Traumatic Ossification of Tendon. S. F. A. Charles.
20 Case of Color Blindness. A. R. Galloway.

14. Parasite of Cancer.—In cases in which the cancer cells have broken bounds and are wandering or migrating, Butlin says the hope of the patient lies in these factors: (1) In the inability of the cancer cells to exist and flourish at a distance from the tumor; (2) in the possibility that the cancer cells in the individual case may be wanting in vigor; and (3) in the possibility that the resisting power of the host may be high. The first of these factors requires no treatment; the second is quite beyond medical control at present; and the third has been for some years constantly before the profession, so much so that the attempts to discover a specific against cancer have given way, in the minds of most scientific physicians and surgeons, to an attempt to discover some means of increasing the resisting power of the host. Wide and early operations, adapted to the pathology of the particular variety of malignant disease in each particular part of the body, Butlin points out, have been attended with very great success. Nor is this to be wondered at. For the tumor is the manufactory and the storehouse of cancerous cells. And even in those cases in which the cells have begun to migrate, it is most desirable to get rid of the chief source of cancer cells. The resistance of the host has a much better chance of contending successfully with scattered cells, perhaps not yet firmly established where they lie, after the removal of the tumor. In fact Butlin feels that if a "specific" against cancer were discovered it might even then be very desirable to remove the primary lesion, the tumor. Butlin warns against trusting implicitly to microscopic findings and planning operations on them. He lays down the axiom that "If an operation does not fulfil the requirements of pathology and is, nevertheless, exceedingly successful, the pathology which relates to it must be revised; either the observations are incorrect, or the deductions which are drawn from them are not justified."

15. Mechanism and Treatment of Shock.—Surgical shock is divided into three stages by the authors: (1) The stage of stimulation, or the pressor stage; (2) the stage of depression, or the depressor stage; (3) the stage of equilibrium, when active abnormal afferent impulses are in abeyance. It has been shown that every sensory nerve contains pressor and depressor fibers to the vasomotor center; stimulation of the pressor fibers only induces reflex vasoconstriction and cardiac acceleration, while stimulation of the depressor fibers only, induces reflex vasodilatation, and at the same time inhibits vasoconstrictor impulses. Stimulation of such a mixed sensory nerve usually induces domination of the pressor group. Domination of the depressor group only occurs (in so far as the present study is concerned) when the pressors are fatigued. Applying these principles to the results obtained by them in a hip excision, the authors conclude the following: The first stage of shock in that operation consisted in a rise of blood-pressure and an increase in the pulse-rate consequent on the domination of the pressor impulses. After about three minutes pressor fatigue commenced. Further stimulation initiated a domination of the depressor impulses, the cessation of these impulses being marked by a passive return of the blood-pressure to an intermediate level, due to the cessation of active depressor domination. Prolongation of the stimulus during the depressor stage leads to: (1) Continuous lowering of blood-pressure; this renders inadequate the blood-supply to the cardiac muscle through the coronary arteries, and this fact, combined with the lack of peripheral resistance, leads to delirium cordis; and (2) anemia and starvation of the central nervous system; if this is carried to a sufficient degree the recovery of the centers is rendered impossible.

16. Estimating Strength of a Vaccine.—The process used by Hicks for counting an emulsion of bacteria of unknown

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strength by comparison with an emulsion of known strength, that is, a "standard," using a differential stain (Gram's method), and a "standard" of opposite staining properties to the bacterial emulsion whose strength it is wished to estimate, is as follows: 1. Obtain a Gram-positive and Gram-negative "standard" by the diluting and plating out processes described. These "standards" keep good for at least six months in our experience. 2. Take equal parts of the emulsion of "unknown" strength and a "standard" of opposite Gram-staining properties and mix thoroughly. 3. Make a film and fix it carefully. 4. Stain by Gram's method, using a counterstain. 5. Count 200 to 300 bacteria, using a "counting square" and a one-twelfth objective and noting the Gram-negative and Gram-positive organisms in the squares counted. 6. Knowing the strength of the "standard" and the proportion of Gram-negative to Gram-positive organisms, the strength of the unknown emulsion is easily worked out by proportion.

Lancet, London

April 27, I, No. 4626, pp. 1109-1174

21 Uses of Tuberculin in Pulmonary Tuberculosis. A. Latham.
22 Progressive Lenticular Degeneration: Familial Nervous Disease Associated with Cirrhosis of Liver. S. A. K. Wilson.
23 *Treatment of Opium Poisoning by Faradic Current. F. Taylor.
24 Uterine Hemorrhage: Abuse of Curet. B. Whitehouse.
25 *Treatment of Bilharziasis by Salvarsan. H. B. Day and O. Richards.
26 *Can as Good Results Be Obtained by Treatment of Pulmonary Tuberculosis in Low Lands as at High Altitudes? C. Saugman.
27 Cesarean Section for Labor Obstructed by a Suppurating Ovarian Dermoid Cyst. J. B. Hellier.

23. **Faradic Current for Opium Poisoning.**—In cases in which the coma has reached a stage threatening life Taylor thinks the faradic current should be applied persistently, in spite of the entire want of response during the first thirty or forty minutes, other than the contraction of muscles. As to the battery employed, he says there is no need for an electric current of exceptional strength. His first patient was treated by a current from a small battery of which the elements are two zinc plates less than 30 mm. square each, 35 to 40 grains of mercury sulphate, and a coil measuring 2¾ inch by 1 inch. The other patient was treated by a portable faradic battery, such as is usually employed by the general practitioner.

25. **Treatment of Bilharziasis.**—The authors conclude that salvarsan as a remedy for bilharziasis is absolutely valueless, and that it should not be used or recommended for this purpose.

26. **Altitudes and Pulmonary Tuberculosis.**—Observation has convinced Saugman that by the treatment of pulmonary tuberculosis in the lowlands it is possible to obtain results which are just as favorable as the results obtained at high altitudes.

Australasian Medical Gazette, Sydney

March 30, XXXI, No. 13, pp. 321-348

28 Present Situations as Regards Infectious Protozoa. F. Tidswell.
29 Onset of Auricular Fibrillation. M. Simpson.
30 *Interesting Gynecologic Condition. S. N. Rorke.
31 Double Uterus and Double Vagina. F. S. Stuckey.

April 6, XXXI, No. 14, pp. 349-376

32 Cancer and Its Treatment. H. L. Maitland.
33 Salpingo-Oophorocele and Allied Conditions. J. P. Hastings.

30. **Double Vagina.**—The following case is reported by Rorke: Patient, age 19, primipara, full time labor, labor pains slight, on and off for twenty-four hours; then much stronger. On examination the os uteri appeared to be fully dilated, but further strong pains appeared to produce no progress in the advancement of the head. After waiting about half an hour, during which the pains recurred with frequency and strength, Rorke observed that both the anus and the vaginal orifice appeared not to be at all bulged by each expulsory effort, but rather retracted or pulled up, the usual eversion and D-shape of the anus being conspicuous by its absence. On further digital examination the head was felt to be past the brim of the pelvis, but was preceded by an elastic mass, which he took to be the yet unruptured "bag of waters," Rorke made an attempt to rupture with his finger nail what he took to be the unruptured "bag of waters," but without success, the structure proving too tough. After minute digital examination, he found that the resistance and obstructing mass was of the nature of a wide band or riband fixed anteroposteriorly in the vagina. He was able with no small degree of manipulation to push his forefinger round the left side of this and feel during a pain, the vertex of the head uncovered by membrane.

Subsequent pains produced no further advance of the head, but only a thinning and flattening of this anteroposterior ligament. Not knowing the extent and exact connection of this ligament, he was not prepared to sever it. Instead, after great difficulty, he applied the forceps, having first fully anesthetized the patient. This proved a rather troublesome task. He applied them to the left of the obstructing band, pushing it to the right with the unoccupied fingers of the introducing hand. This, of course, was only possible between the pains. Rorke delivered the head to the left of it. It was in position, persistent occipitoposterior, and was delivered thus.

Immediately on delivery there was a free hemorrhage and the placenta could not be expressed. On introducing his hand into the uterus Rorke still kept to the left of the band, now clearly definable. The placenta was found adherent over about 2 inches on the right wall of the uterus. This he cleared out piecemeal with his fingers, squeezing the uterus well, after delivery. Contraction was good, and ergot being given, the confinement was completed. Patient made an uninterrupted recovery. On later examination, Rorke found the obstruction to consist of a fibrous septum covered on both sides with mucous membrane. It extended vertically and mesially from close to the vaginal orifice to about a quarter-inch from the cervix. He takes it to have been a modification of a double vagina. On the closest examination no trace of a double uterus could be found, and only one cervix.

Australian Medical Journal, Melbourne

March 23, I, No. 36, pp. 393-404

34 Stricture of Right Ureter Treated by Pyelo-Ureterostresis. B. Kilvington.
35 The Thymus. R. M. Downes.
36 Dystocia Due to Uterine Prolapse with Edema of Cervix. R. T. Sutherland.
37 Operative Treatment of Chronic Trachoma. J. M. Baxter.

March 30, I, No. 37, pp. 405-416

38 The Thymus. R. M. Downes.
39 Foreign Body Impacted in Bifurcation of Left Bronchus of a Boy (Removal). R. A. Stirling.

Annales de Médecine et Chirurgie Infantiles, Paris

April 15, XVI, No. 8, pp. 225-256

40 *Fatal Generalized Vaccinia. (Cas de vaccine généralisée terminé par la mort.) L. d'Astros.
41 Fatal Duodenal Ulcer in Young Infant. (Ulcère du duodénum chez un enfant d'un mois mort par hémorragie intestinale.) Weill and Gardère.
42 *Treatment of Tuberculous Peritonitis. (Traitement moderne de la péritonite tuberculeuse.) E. Périer.

40. **Generalized Vaccinia.**—The infant was vaccinated during the first week of its life and by the end of a month it had fifty-two pustules scattered over its body but its general health was not materially impaired and there was no fever. Then several dozen more pustules appeared and the eruption assumed a hemorrhagic tendency, proving soon fatal.

42. **Treatment of Tuberculous Peritonitis.**—Périer reviews the different methods of treatment in vogue, citing the good results obtained by certain physicians with lime, a non-fluid and salt-free diet, drinking very little if at all (to combat the diarrhea), a wet compress continuously on the abdomen, covered with oil silk, and complete bed rest with the windows all open. The lime is given according to Ferrier's formula omitting the magnesia: 0.65 gm. calcium carbonate; 0.2 gm. tribasic calcium phosphate, and 0.15 gm. sodium chlorid. One such capsule to be taken three times a day after meals. This method seems most promising in the cheesy and ascites cases. Anorexia, vomiting and diarrhea are the chief indications for it, and also tuberculous lesions in the lungs, etc. Puncture is advisable if the ascites is distressing and drags along, but he advises against it in moderate cases. Laparotomy no longer has the same vogue as a few years ago; it should be reserved for the cases in which the general health is suffering severely from the long duration of the disease. Exposure of the

abdomen and later of the trunk to the direct sunlight was followed by a prompt cure in three cases reported by Chatin and Gaulier from the public hospital at Lyons. The sun baths were given for two hours morning and afternoon or for three or four hours in the morning alone, avoiding the hottest hours of the day, commencing with fifteen-minute exposures to prevent sunburn. The head is protected with a shield of black paper covered with a white cloth, the shield fastened to the back of the reclining chair.

Archives Mensuelles d'Obstétrique et de Gynécologie, Paris

April, XVII, No. 4, pp. 305-400

43 *Abdominal Hysterectomy for Uterine Cancer During Pregnancy. (L'hystérectomie pour cancer de l'utérus au cours de la grossesse.) J. L. Faure.
44 *The Wassermann Reaction in Syphilitic Pregnant and Parturient Women and in Their Children. R. Daunay.
45 Lesions in the Corpus Luteum and Uncontrollable Vomiting in Pregnancy. (Corps jaune et vomissements incoercibles.) J. L. Chiré.

43. Abdominal Hysterectomy for Cancer During Pregnancy.—Faure insists that operative treatment should be the rule in every case of cancer in a still movable uterus, irrespective of pregnancy or other conditions. Hysterectomy is exceptionally easy with the large pregnant uterus. If the patient escapes recurrence for six months to a year, the chances are very slight that the malignant disease will return later. He presents evidence to prove that the fact of the existence of the pregnancy does not increase the liability to recurrence after radical removal of the cancer.

44. The Wassermann Reaction in Mothers and New-Born Infants.—Daunay has previously published his experiences with the Wassermann reaction in eighty-two pregnant women, and here reviews an additional series of 146. He gives the findings in tabular form as also in a series under salvarsan. In certain cases in which the mother had a history of syphilis but was free from all apparent manifestations of it and the Wassermann reaction was negative, and her child was also free from signs of syphilis, the child at birth gave a positive Wassermann reaction, confirming anew the absolute independence of the maternal blood and the fetal blood in regard to the specific antibodies. Mothers simply suspected of syphilis and with a negative Wassermann reaction are liable to give birth to an infant with florid syphilis.

Bulletins de la Société de Pédiatrie, Paris

March, XIV, No. 3, pp. 113-150

46 Hernia of Lung from Absence of Left Sternocleidomastoid Muscle. (Hémiatrophie congénitale de la face et de la langue à gauche. Absence du muscle sterno-cleido-mastoidien et hernie cervicale du même côté.) G. Variot.
47 Infants with Abnormally Large Abdomen. (Variations, sous l'influence de la ration alimentaire, du périmètre—sus-ombilical—chez les nourrissons atteints d'ectasie abdominale.) G. Variot and Morance.
48 *Shield for Throat Examinations. (Ecran transparent fronto-facial pour l'examen de la gorge des enfants.) J. Renault.
49 Excellent Ultimate Results from Subcutaneous Tenotomy for Congenital Torticollis. A. Jalaguier and L. Lamy.
50 *Sunlight Treatment of Surgical Tuberculosis. (L'héliothérapie par la méthode de Rollier dans les tuberculoses chirurgicales.) P. F. Armand-Delille.

48. Shield for Throat Examination.—Renault makes the shield of mica, mounted in aluminum, and fastens it to a headband. The mica shield is 17 by 19 cm. square and protects the physician against contagion in examining the patient's throat, while the shield can be boiled or sterilized in other ways and the soft metal can be curved to fit the face, leaving the physician's hands both free.

50. Direct Sunlight in Therapeutics.—Delille describes his impressions from a recent trip to Leysin where Rollier has been so successful in curing surgical tuberculosis by direct exposure to the sunlight. He trains the children gradually until they spend over six or eight hours in the sunshine, absolutely naked, the head only being protected. The location at an altitude of about 4,000 feet raises it above the mists of the valleys. Delille examined fifty patients and compared the present status with the series of photographs taken at different intervals, all confirming the rapid transformation of the general condition, the drying up and healing of fistulas in a few weeks and the healing of the tuberculous lesions with complete functional restoration and absolute restitution of the movements of the joints, even when the arthritis had long had a fistula or fungous growths. Success was obtained, Delille says, in fully 99 per cent. of the cases, the course requiring from six to twelve months or two years according to the previous condition. Rollier does not use plaster casts, and he applies extension only for coxalgia. For Pott's disease he does not use a plaster bed but exposes the back to the sunlight for several hours. Delille appeals to the authorities to organize a similar mountain station for heliotherapy in France, or at least to send to Leysin some children needing this treatment, especially those refused admittance to the seaside sanatoriums. A committee has since been organized in the Société de Pédiatrie de Paris to suggest ways and means to carry this suggestion into practice.

Journal de Médecine de Bordeaux

April 14, XXIV, No. 15, pp. 225-240

51 Beverages at and Between Meals. (Boisson de repas et de hors repas.) P. Carles.
52 *Modifying Injections in Tuberculous Ostitis. (Cas d'ostéite tuberculeuse traitée par des injections modificatrices.) A. Venot.

52. Modifying Injections in Tuberculous Ostitis.—Venot prefers ether as the vehicle for iodoform, with care to evacuate the ether fumes at once afterward, pushing the needle to the top of the cavity where they accumulate. The ether stretches the walls of the cavity and thus smooths out folds and crevices, permitting the iodoform to reach every part of the walls of the cavity. It seems to have a direct curative action. Venot also uses frequently a 20 per cent. solution of zinc chlorid. Both this and the iodoform-ether cause more or less pain for a time, so he prefers an ethereal oil with the iodoform for children. These modifying injections, followed by immobilization of the part, are far superior, he thinks, to operative measures. The wider his experience, the less surgical his procedures. His rule is first to evacuate the pus, then make the modifying injection, and then immobilize and follow with general antituberculosis measures.

Lyon Chirurgical, Lyons

April, VII, No. 4, pp. 365-384

53 Lateral Suture of Vessels. (Sutures latérales des vaisseaux.) E. Villard and E. Perrin.
54 *Fulminating Lead Poisoning from Shot. (Intoxication saturnine aiguë, mortelle, consécutive à un coup de feu par arme de chasse.) J. Curtillet and P. Lombard.
55 Suppuration in Cancer of Prostate. (Nouveau cas d'abcès chaud de la prostate au cours d'un cancer de cet organe.) V. Rochet and L. Thévenot.

54. Fatal Lead Poisoning from Bird-Shot in the Arm.—A healthy lad of 15 received the entire charge of a shotgun lengthwise in the forearm, and the shot either had to be left or the whole arm amputated. The boy seemed to be doing well for the first twelve days except for considerable anemia; during this period the arm gradually swelled more and more. The swelling then began to subside; with this severe symptoms of lead poisoning developed, proving fatal in twenty-five days. The intoxication was so fulminating that there was no time for the line on the gums, the colic or nervous disturbances to develop. Headaches, insomnia, vertigo and anorexia were the main symptoms, accompanied by a waxy tint of the skin. Nine somewhat similar cases on record show that the prognosis depends mainly on the shape of the lead, small shot offering a greater surface than a single bullet. With a bullet, the poisoning did not manifest itself until after two and eighteen years in two cases; with bird-shot, symptoms were noticed by the third to the sixteenth week, the twelve-day interval in the case reported being the briefest on record. Anemia had been pronounced from the first, and attention is called to this as a warning signal that should have been heeded. The great swelling of the arm in this case probably hastened the dissolving of the lead in the edema fluid, and the subsidence of the edema must have washed the dissolved metal throughout the system, entailing the rapid systemic poisoning. The prognosis with a bullet or shot in the body is influenced not only by the quantity of lead in the tissues but by its surface expanse and by the conditions in regard to the vascularization of the region and the degree and extent of the local edema.

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Lyon Médical, Lyons

April 7, XLIV, No. 14, pp. 457-816

56 Paralysis Complicating Fracture of Humerus in Two Children. (2 cas de paralysie radiale compliquant une fracture de l'extrémité inférieure de l'humérus.) Gallois and Tartanson.

57 Remote Lymphadenitis with Appendicitis. X. Delore and J. F. Martin.

April 14, No. 15, pp. 817-872

58 Pneumobacillus Pneumonia. V. Cordier and A. Badolle.

Revue de Médecine, Paris

March, XXXII, No. 3, pp. 161-240

59 *Diabetic Eclampsia. (Cas d'éclampsie diabétique.) A. Chauffard and H. Rendu.

60 Atypical Zona. (Les zonas atypiques. II.) J. Minet and J. Leclercq.

61 Case of Syphilitic Lung Disease Complicated with Pyopneumothorax. (Du pyopneumothorax dans la syphilis pulmonaire.) C. Roubier and H. Bouget.

62 Tuberculosis of Cardinal Richelieu. (La maladie du Cardinal de Richelieu.) H. Cleu.

April, No. 4, pp. 241-328

63 *Meningeal Symptoms in the Tuberculous. (Les états méningés des tuberculeux.) J. Tinel and P. Gastinel.

64 Effect on Nutrition of Removal of Dog's Pancreas. (Recherches sur la dépancréatation.) H. Labbé.

65 Lactose Has No Diuretic Action Unless Liver Is Insufficient. (De la valeur réelle du lactose comme diurétique.) A. Cramer.

66 *Paramyoclonus from Mumps. (Paramyoclonus d'origine ourlienne.) M. Lafforgue.

67 *Organotherapy for Backward Children. (Arriération infantile et opothérapies endocriniennes.) R. Dupuy.

59. Diabetic Eclampsia.—In the case reported in a tuberculous diabetic, the brain, spinal cord, meninges and kidneys were apparently anatomically normal and there were no signs of uremia. The patient died after thirty-five eclamptic attacks in less than twenty-four hours. The eclampsia seems to have been of toxic origin, presumably an equivalent for diabetic coma.

63. The Meninges in the Tuberculous.—Tinel and Gastinel review the necropsy findings in a number of cases, all showing how an existing tuberculosis can affect the meninges and induce extremely variable lesions from acute inflammatory infiltration to diffuse sclerosis with fibrous nodules or cystic formations. On the other hand, the meninges may display a remarkable tolerance to the tubercle bacilli and the lesions may run an entirely latent course. In other cases the meninges may be extremely intolerant and react with intense symptoms to minimal and transient injury. Tinel and Gastinel emphasize anew in this connection the remarkable fluctuation in the tolerance of the individual. One day he seems to be extra resistant, actually vaccinated against the toxic products, and another day he seems to be hypersensitive to them. These phases may alternate and the meninges share in this variable behavior. Nothing but an actual vaccination can explain the phases of absolute latency following or alternating with periods suggesting attenuated meningitis.

66. Paramyoclonus Following Mumps.—Lafforgue reports a case of mumps with pronounced myoclonic symptoms the tenth day of the disease. The parotitis developed first, orchitis followed, the temperature running up still higher. As this subsided, clonic spasms developed in various groups of muscles all over the body. The clonic spasms gradually subsided until by the sixth day all had disappeared except those in the flexors of toes and fingers, but two weeks later the muscle spasms returned, nearly as severe as at first, and the knee-jerks were much exaggerated but without other appreciable nervous symptoms. The spasms gradually subsided again in a few days until little was left of them, and the patient has not been seen since. From the first onset of the infection there had been headache and occasional epistaxis. During the first few days the epigastrium had been painful and tender, suggesting possibly involvement of the pancreas.

67. Organotherapy of Backward Children.—Dupuy suggests utilizing our knowledge of the influence of the glands with an internal secretion to ward off impending physical and mental infantilism. The children should be given minerals as indicated by examination of the urine, and, if the blood is poor, fresh or desiccated bone marrow and iron. Inherited syphilis should be treated and adenoids removed, the diet should be extra nourishing, rich in carbohydrates and mineral salts, and the child should rest reclining for several hours a day. These preliminary measures he regards as very important as adjuvants to the organotherapy. The course of the latter lasts from six to twelve months; the first months he gives three capsules a day containing each from 0.02 to 0.03 gm. of pulverized thyroid gland, pituitary gland and adrenal. If there is extreme weakness or agitation, he adds extract of testicle and corpus luteum. In some cases he administered the extracts in glycerin by subcutaneous injection. He summarizes twenty-two cases in which this polyopotherapy, as he calls it, was applied to children from 10 to 18 years old. No ill effects were observed in any instance. The results were very encouraging, he states, the mind and body all showing benefit, the persisting sexual characteristics developing, and the entire metabolism becoming transformed.

Presse Médicale, Paris

April 17, XX, No. 31, pp. 309-324

68 *Technic for and Interpretation of Findings with Endoscopy of Lower Intestine. (L'endoscopie recto-colique. Rectoscopie.—Sigmoidoscopie.) R. Bensaude.

April 20, No. 32, pp. 325-336

69 *Technic for Ligation of External Carotid Artery. (La ligature de l'artère carotide externe.) P. Descomps.

68. Proctoscopy.—Bensaude's article is accompanied by thirty illustrations and describes the technic and the interpretation of the findings with direct visual inspection of the rectum and sigmoid flexure. He gives a set of seven views taken at different depths in the normal intestine for comparison. The difficulties of differentiation are shown in a case cited in which a woman of 40 developed hemorrhagic diarrhea rebellious to the usual measures. Proctoscopy five years after the onset of the diarrhea showed the rectum nearly filled with vegetations bleeding at the slightest touch, occupying a zone about 5 cm. wide, commencing about 8 cm. from the anus. No evidences of cancer or tuberculosis were found on microscopic examination of a scrap removed, and the possibility of syphilis was then thought of for the first time. Under mercurial treatment the stools became normal and the vegetations subsided almost completely.

69. Ligation of External Carotid Artery.—Descomps advocates an incision parallel to but considerably more toward the front than the classic incision for ligation of the carotid, and describes the various steps of the technic with nine illustrations.

Berliner klinische Wochenschrift

April 15, XLIX, No. 16, pp. 725-772

70 Rontgenoscopy of Gastro-Intestinal Tract. (Neue Beiträge zur Röntgenuntersuchung des Digestionstraktes.) G. Schwarz. (Radiologische Untersuchung des Dickdarmes.) M. Cohn.

71 *Prophylaxis of Tuberculosis. (Experimentelles und Epidemiologisches zur Lungenschwindsuchtsfrage.) P. H. Römer.

72 Bacteriologic Research on Dysentery. (Neuere bakteriologische Befunde bei Ruhrerkrankungen.) Baerthlein.

73 Biologic Action of Thorium. (Zur biologischen Wirkung des Thoriums.) J. Plesch.

74 Anaphylatoxin. E. Friedberger and A. Mareschl.

75 General Principles of Modern Treatment of Eczema. (Neuere Erfahrungen über das Ekzem und dessen Behandlung.) A. Alexander. Commenced in No. 15.

76 Bovine versus Human Tuberculosis. (Geheimrat J. Orth's Vortrag über Rinder- und Menschentuberkulose in der Gesamtsitzung der Kgl. preussischen Akademie der Wissenschaften vom 8 Februar 1912.) L. Rabinowitsch.

71. Prophylaxis of Pulmonary Tuberculosis.—Römer concludes from the experimental and epidemiologic data available that in the circles of the population in which tuberculosis most prevails scarcely any one reaches puberty free from infection. Both tuberculous human beings and animals are relatively immune to later infection with tubercle bacilli, so that the mortality from tuberculosis is less in the regions where the disease is most prevalent. Pulmonary phthisis is the result of massive autoreinfection of an organism intensely infected in childhood. The conclusion hence follows that if children can be protected against massive tuberculous infection, they will escape pulmonary phthisis later.

Deutsches Archiv für klinische Medizin, Leipsic

CVI, Nos. 1-2, pp. 1-218. Last indexed May 18, p. 1548

77 Clinical and Pathologic-Anatomic Study of Continuous Arhythmia. H. A. Freund (Detroit).

78 Emotional Paroxysmal Tachysystole. (Psychische ausgelöste paroxysmale Kammertachysystolie.) K. Kure.

79 Hemolysis, Lipolysis and the Rôle of the Mononucleated, Non-Granulated Basophilic Cells. (Hämolyse, Lipolyse und die Rolle der einkernigen ungranulierten basophilen Zellen.) S. Bergel.

80 *Serotherapy (Serum from Convalescents) in Scarlet Fever. (Behandlung schwerer Scharlachfälle mit Rekonvaleszentenserum.) E. Reiss and P. Jungmann.

81 Echinococcus Cysts in the Brain. (Multilokulare Gehirnechinokokk.) H. Elchhorst.

82 Anemia from Hemolysis. (Ueber die hämolytische Anämie.) O. Roth.

83 Roentgenography of the Pericardium. (Das Röntgenbild des Perikards. Orthodiagraphie und Teleröntgenographie.) Römheld.

84 Abnormal Blood-Picture with Disease of Any Gland with an Internal Secretion. (Ueber das Blutbild bei Erkrankungen der Drüsen mit innerer Sekretion und seine Beziehungen zum Status thymicolymphaticus.) L. Borchardt.

80. **Serotherapy in Scarlet Fever.**—Fifteen years ago Weisbecker reported the treatment of five scarlet-fever patients with serum drawn from a convalescent, and others have published similar attempts since. The results have been conflicting, but Reiss and Jungmann here report application of the method in twelve cases and call attention to the remarkable turn for the better in ten of these patients after intravenous injection of from 40 to 100 c.c. of serum drawn from several scarlet-fever convalescents and mixed. The disease was unusually severe in each case, and the temperature and pulse dropped by nearly 3 degrees C. in from nine to fourteen hours, the drop beginning after two to four hours. The serotherapy did not seem to have the slightest action on any secondary phenomena, the lesions in the tonsils, lymph-nodes and joints continuing or developing unmodified by the serotherapy. This fact is regarded as proof of the efficiency of the serum as the fever dropped and the general condition materially improved notwithstanding the presence or progressive course of a destructive angina, for example. They now make it a rule to apply the serotherapy only in those cases in which recent scarlatinal infection is responsible for serious symptoms. The patients all began to convalesce the fourth day or fifth at latest, while in 200 other cases the fever lasted from four to fifteen days, with an average of six days. The fever terminated by crisis in only two of these 200, while this occurred in all the ten serum-treated cases. They urge others to try this method of treatment in pure, severe cases, the earlier the better, and never later than the fourth day. The serum must be from patients convalescing from scarlet fever, free from complications and otherwise healthy, at about the eighteenth to the twenty-fourth day of the disease. They prefer to centrifugate the serum from at least three convalescents and distribute it in fused ampullas containing each 50 c.c., to which 5 drops of a 5 per cent. phenol solution have been added. Each separate serum is tested beforehand by inoculation and for the Wassermann reaction.

Deutsche medizinische Wochenschrift, Berlin

April 18, XXXVIII, No. 16, pp. 737-784

85 *Pathology and Treatment of Cardiac Asthma. H. Rosin.

86 Relations Between Human and Bovine Tuberculosis. (Beziehungen zwischen menschlicher und tierischer Tuberkulose.) H. Kossel.

87 Specific Antibodies in the Serum of the Tuberculous. (Die spezifische Antikörper im Blutserum Tuberkulöser.) B. Möllers.

88 *The Contagious Period of Scarlet Fever. (Zur Infektionsdauer des Scharlachs.) A. Baginsky.

89 Salvarsan in Relapsing Fever. (Anwendung des Salvarsans bei Febris recurrens.) P. P. Smirnoff.

90 Stenosis or Obliteration of Left Iliac Vein at Its Junction with the Vena Cava. (Stenose bzw. Obliteration der linken V. iliaca an der Einmündungsstelle in die Hohlvene.) M. Nagayo and O. Nakayama.

91 Suture of Anal Sphincters; Five Cases. (Ueber Sphinkternaht.) M. Eschenbach.

92 Metabolic Findings in Child with Myxedema. A. Loewy and P. Sommerfeld.

93 Jaundice with Inherited Syphilis; Four Cases. (Ueber Ikterus bei der hereditären Syphilis.) O. Rosenberg.

94 Hemorrhagic Nephritis in Infant with Inherited Syphilis. R. Hahn.

95 Salvarsan in Inherited Syphilis. E. Andronescu.

96 Roentgenotherapy of Pruritus Ani. W. Rave.

85. **Cardiac Asthma.**—Rosin discusses the causes and diagnosis and says that the prognosis at each attack is grave. Treatment must be rapid and intensive to give speedy relief, giving the preference to drugs which pass rapidly into the circulation. Consequently the heart tonics have to be given by subcutaneous, intramuscular or intravenous injection. Drugs given by the mouth not only disturb the respiration but they are defectively absorbed as conditions in the circulation during the attack are unfavorable for absorption. Even in the best case they work too late. Camphor in a 10 per cent. oil solution has maintained its usefulness and is indispensable during the attacks. He adds that as it seems to be entirely non-toxic, the injections should not be spared; they can be repeated every fifteen minutes. Caffein is also a good stimulant for the heart; judging from experiments on animals it does not, like camphor, act on the heart muscle but tones up the vessels and acts on the blood-pressure. He prefers to give it in a 2 per cent. solution to which a little phenol has been added as the solutions otherwise are apt to grow moldy and are slightly irritating, thus providing under the skin a good culture medium for germs. In long protracted attacks, three injections can be made in an hour. In very threatening attacks, some preparation of digitalis might be given by intravenous injection. Only after failure of everything else does he approve of an intragluteal injection of epinephrin. An ice-bag to the heart may regulate its contractions, or hot applications, as hot as can be borne. A favorable reflex action on the vascular apparatus may be realized by putting the hands and forearms in hot water. Mustard applications to the heart region are also useful but inhalation of sharp aromatic substances are not to be commended. He remarks that venesection is not applied as often as it deserves. The physician is often held back from using it by the fear that the venesection might be considered responsible for the unfavorable outcome in case the patient succumbs, but he declares that this consideration should not deter from venesection in cardiac asthma. Withdrawal of not less than 200 c.c. of blood often brings subjective and objective relief. One need not be afraid of often repeating the venesection with recurring attacks. The lost blood is rapidly replaced. Great relief may be obtained by having the patient sit in an upholstered easy chair with a small table in front of him on which he can rest his arms. In conclusion Rosin mentions oxygen as a possible useful adjuvant. Cardiac asthma, he reiterates, is only a symptom, and treatment of the underlying cardiovascular affection is the main thing.

88. **Duration of Contagiousness of Scarlet Fever.**—Baginsky gives a diagram illustrating forty-five cases in his experience in which children discharged from the hospital as fully cured of scarlet fever, the forty-second day, infected other members in the home to which they returned. In six cases the children gave the infection in four days to other children after their return; in some others the interval was from five to twenty-five days, but in the majority it averaged seven. Among the total forty-five there were only two children who still had otitis when discharged. He has noticed in his hospital practice that scarlet fever is liable to develop apparently spontaneously after a severe burn. This occurred in six cases. It is possible that the virus may lurk in the nasopharynx in apparently healthy children, and thus induce scarlet fever in children predisposed by a severe burn. He found streptococci in the blood in a large proportion of the scarlet-fever children. It is evident that the scarlatinal virus is the medium that prepares the soil for the streptococci, or the streptococci bring with them the actual scarlatinal virus. It is still a question how long a child with scarlet fever should be isolated. The present six weeks' rule is inadequate, he thinks. The best plan would be to have special convalescent homes for children with scarlet fever and diphtheria, where they can go on being discharged from the hospital.

Medizinische klinik, Berlin

April 14, VIII, No. 15, pp. 595-638

97 *Constitutional Achylia. R. Schmidt.

98 *Operative Indications for and Experiences with Resection of Ribs in Pulmonary Tuberculosis. (Ausgedehnte Rippenresektion bei der Lungentuberkulose.) P. L. Friedrich.

99 Infant Mortality During Heated Term. (Die Sommersterblichkeit der Säuglinge.) H. Rietschel. Commenced in No. 4.

100 Etiology and Symptoms of Chorea Minor. A. Westphal.

101 Psychotherapeutic Training of Emotions. (Ueber Erziehung der Gefühle.) H. Vogt.

102 Radiotherapy of Cancer. (Umfrage über die Behandlung der bösartigen Geschwülste mit Röntgenstrahlen.) M. Levy-Dorn and others.

103 Intravenous Salvarsan in Syphilis. (Ueber intravenöse Salvarsanbehandlung.) E. E. H. Goldbach.

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104 The Warming Characteristics of the Wind. (Wärmecharakter der Winde.) J. Schubert.
105 General Principles of Electric Excitation. (Die allgemeinen Gesetze der elektrischen Erregung.) H. Boruttau. Commenced in No. 13.
106 Skating Fractures. (Die Unfallkasuistik der modernen Eispaläste.) C. Zander.

97. **Constitutional Achylia.**—The motor functioning of the stomach may be normal or exaggerated but the secretory functioning is much impaired in the cases which Schmidt classes as constitutional achylia. Such patients are generally youthful, frail and with signs of neurasthenia and old glandular enlargement and other traces of old tuberculous processes. Malformations are common among them as also morbid behavior of the reflexes and a tendency to acid diarrhea. Constitutional achylia is often accompanied by extreme and fluctuating bradycardia, subnormal temperature and a sensitive vasomotor system. A frequent combination is achylia, bradycardia and tuberculin reaction. Hypotonic bradycardia in the comparatively young should suggest possible achylia; such persons often have syncope, mitral stenosis or angioneurotic edema. In a case described in detail the total achylia was accompanied by orthostatic albuminuria. Treatment should be directed to the entire digestive tract or body as a whole, rest cures, a stay in the mountains or at the seashore. The individual tolerance for various articles of diet should be carefully determined; coffee in particular may not be tolerated at all, or acid foods, fats, vegetables and flatulence-inducing starchy foods; some patients are unable to eat sweets. The patient's digestive apparatus is constitutionally weak and should be spared all possible effort. In some cases sodium bicarbonate acts better than hydrochloric acid, and antineuralgic drugs may relieve pain in the stomach region. The physician should manage the case as a general internist rather than as a stomach specialist.

98. **Extensive Resection of Ribs for Pulmonary Tuberculosis.**—Friedrich has considered this operation in forty cases and performed it thirty-one times on twenty-nine patients. In all it seemed to be the last resort after failure of other measures perseveringly applied, the prognosis growing constantly more unfavorable, and yet twenty of the patients were restored to health by the operation and have regained their earning capacity with no signs of a return of symptoms during the almost five years since. The youngest patient was 16 and he regards 40 as the limit of operability. Some had been bedridden for months with high hectic fever, night sweats and loss of weight; the outcome was more favorable the better nourished the patients, especially the muscular system. Friedrich has learned to dread a sallow complexion, a sallow flabby skin, as this generally indicates very low resisting powers, and there is usually already some tuberculous involvement of the intestines. The heart was always small and flabby, pulse rapid and the entire vascular system irritable, and yet the first few days after the operation make great demands on the heart. A preliminary course of tonics to prepare the heart is very important. The outlook is better when the other lung is sound, but old inactive processes do not contra-indicate the operation. If the amount of sputum has materially increased during the last few weeks, indicating new foci, the prognosis is less favorable. Recent dissemination through the lungs, latent intestinal tuberculosis and adhesion of the sheets of the pleura are the chief dangers. When the pleura is not movable the lung cannot expand properly on the other side, which renders the outlook much less favorable. The only patients who succumbed were those with recent metastatic lesions elsewhere. (Friedrich described his technic in THE JOURNAL, Dec. 11, 1909, page 1970.)

Münchener medizinische Wochenschrift

April 9, LIX, No. 15, pp. 793-848

107 Technic for Intravenous Transfusion of Blood. (Zur Technik der arterio-venösen Bluttransfusion.) E. Payr.
108 Nerve Blocking in the Intervertebral Foramen for Anesthesia of Abdomen, Breast, Arm and Neck. (Leitungsanästhesie aus Foramen intervertebrale.) M. Kappis.
109 Behavior of Hemibilirubin in Health and with Liver Disease. (Verhalten des Hemibilirubins beim Gesunden und Leberkranken.) H. Fischer and F. Meyer-Betz.
110 Differentiation of Bacterial Toxins: the Toxin, the Endotoxin and the Anaphylatoxin. (Differenzierung bakterieller Gifte.) G. Bessau.
111 *Phenomena Suggesting Anaphylaxis After Repeated Injections of Salvarsan. (Ueber anaphylaktoide Erscheinungen bei wiederholten intravenösen Salvarsaninjektionen.) G. Iwaschenzow.
112 Salvarsan in Syphilis. (Statistisches und Klinisches zur Salvarsantherapie der Syphilis.) F. Berger.
113 Collargol in Gonorrheal Rheumatism and Other Acute Sequelæ of Gonorrhea. (Klinische Beiträge zur Kollargolbehandlung des Tripperrheumatismus und anderer akuter Folgezustände des Trippers.) Gennerich.
114 Improved Technic for Graphic Registration of Heart Sounds. (Eine hochempfindliche Membran zur Herztonregistrierung.) A. Weber.
115 Pituitary Extract Not to Be Recommended as Oxytocic in the Home: Case of Tetany of the Uterus Following Its Use. (Pituitrin als Wehenmittel im Privathause nicht zu empfehlen.) Rieck.
116 Threatening Anaphylaxis After Third Injection of Antitoxin in Eleven Years. (Todesgefahr infolge von Anaphylaxie.) W. Asam.
117 *Sudden Death from Fibrillation of the Heart Ventricles. (Ueber plötzlichen Tod durch Herzkammerflimmern. Gleichzeitig ein Beitrag zur Erklärung plötzlicher Todesfälle bei Status thymicolymphaticus.) H. H. Hering. Commenced in No. 14.

111. **Phenomena Suggesting Anaphylaxis After Salvarsan.**—Iwaschenzow reports treatment of sixty-two men with salvarsan; all had some nervous disease and most had arteriosclerosis. He gave the salvarsan by intravenous injection in small doses with long intervals, and fifteen developed a condition suggesting anaphylaxis, the face becoming suddenly congested and swollen with spasmodic arrest of breathing, sensations of heat and pressure in the head, twitching and paresthesia in the extremities and great distress. The duration of the attack was from one-half to five minutes. The heart action did not seem to be affected and the attacks passed over without sequels. The dose was the third up to the seventh infusion, and never more than 0.4 gm. salvarsan; generally only half of this was infused at a time, at intervals averaging a few days to a week. He thinks that the smallness of the dose and the unusual length of the intervals were responsible for these anaphylactoid symptoms.

117. **Sudden Death from Fibrillation in the Heart.**—This communication from the university clinic at Prague in charge of Hering reviews the history of this subject and the various theories advanced to explain why animals die when fibrillation occurs in the heart. He has recently encountered a clinical case of the kind, the sudden and unexpected death occurring with constant irregular heart rhythm. The heart stopped beating before the respiration was arrested, and death occurred suddenly, all of which suggested fibrillation as the possible cause. The patient was a woman of 23, with a history of scarlet fever and acute rheumatism, and there were signs of pronounced status thymico-lymphaticus. Whep the fibrillation occurs in the ventricles, no blood is passed along. In a second case a woman of 40, with the same form of heart and valvular disease, died suddenly in much the same way, but with signs of peritonitis, suggesting a possible toxic paralysis of the vasomotor center. Hering urges careful examination of conditions in regard to the cessation of the heart action and persistence of respiration in all cases of sudden death, especially where fibrillation is suspected as the main factor.

Therapie der Gegenwart, Berlin

April, LIII, No. 4, pp. 145-192

118 *Metastatic Abscesses in and Near the Kidney. (Ueber die metastatische Nieren- und paranephritischen Abscesse, ausgehend von Furunkeln.) W. Zinn.
119 *Clinical Importance of Conditional Reflexes in Children. (Bedingte Reflexe bei Kindern und ihre klinische Bedeutung.) E. Moro.
120 Pituitary Extract in Obstetrics. (Ueber Wehenanregung durch Hypophysenextrakt.) W. Benthin.
121 Inhalation of Saline Spray in Diseases of the Nasal Mucosa. (Behandlung der kranken Nasenschleimhaut mittels Inhalationen zerstäubter Sole.) F. Sippell.

118. **Metastatic Abscesses In and Around the Kidney Secondary to Furuncles.**—Zinn emphasizes anew that the fate of the patient very often depends on whether we have in mind the possibility of suppuration in or near the kidney after a boil. There may be a long interval before the kidney affection manifests itself. The patient then runs up a high fever with much exhaustion and possibly slight pains just below the costal arch, with an almost pathognomonic tenderness and enlargement of the kidney involved. In four cases reported, staphylococci were cultivated both from the primary boil and

the secondary renal or pararenal abscess. The fever is irregular, continuous, remittent or intermittent, sometimes interrupted by chills, with lassitude and headache; typhoid, tuberculosis, pleurisy and endocarditis are considered, while the possibility of an abscess in or near the kidney is too often forgotten. Once suggested to the mind, the local tenderness on pressure of the kidney region points to the diagnosis which is particularly important on account of the necessity for immediate surgical measures. A history of a boil or carbuncle which had healed over from one to four weeks before clears up the diagnosis. In two of the cases reported by Zinn the fever flared up during the course of a carbuncle or furuncle, with nothing in the local lesion to explain this exacerbation, and the abscess in the kidney region led to numerous complications, including thrombophlebitis; in another case there were no complications although the primary lesion was a carbuncle and the patient had myocarditis and arteriosclerosis. The prognosis is good when the abscess is evacuated early and drained. Zinn urges general practitioners to be on the lookout for such cases, as fatal complications are liable to develop if the true source of the symptoms escapes detection too long.

119. **Conditional Reflexes in Children and Their Clinical Importance.**—Moro discusses the mechanism and factors in conditional reflexes in children, such as the reflex action which is brought into play when training an infant to control the mechanism of micturition. The conditional reflexes are responsible for the tendency to frequent vomiting in neuropathic children. Certain children do not eat enough—in fact, he remarks, if we listen to the mothers and grandmothers, it seems as if very few children take enough nourishment. Especially is this the case with children who have milk forced on them as they grow out of infancy. Such children are apt to lose all appetite, the gastric secretion becomes defective as is evidenced by their repugnance to certain articles of food. If this article of food is taken into the stomach, the organ rebels and the child vomits it by a natural, unconditional reflex. But soon the mere sight of the article of food or even hearing it mentioned, brings a conditional reflex vomiting. The reflex path becomes smooth and slippery from constant travel, and all inhibiting influences die out, so that the child becomes an actual virtuoso in vomiting. Moro reports two such cases, and adds that starting for school may start the conditional reflex in these vomiting experts, their morning vomiting occurring only during the months when school is in session. Other conditional reflexes are the spasm of the lids first brought on by conjunctivitis but persisting after the eye lesion has long healed, and the convulsive cough that keeps up after a child has recovered from whooping-cough. The conditional reflexes can be utilized in therapeutics, as when prolapse of the rectum is kept under control by strips of adhesive plaster; it is soon possible to leave off one after another of the strips, the reflex action controlling the prolapse just as the full set of strips of plaster had mechanically controlled it at first. When an enema is given every time a young child is constipated, it soon becomes so used to it that defecation cannot occur without the enema and the conditional reflexes have to be called on. The child is placed on the pot at a regular morning hour and a foreign body is introduced into the anus to keep up the sensation of the syringe, first a glycerin suppository, then a simple cocoa butter suppository and gradually nothing at all, as the habit of regular defecation is built up anew. When this training is supplemented by complete abstention from milk, giving instead vegetables, fruit and coarse bread—which can easily be done with infants over 2 years old—it is possible to break up completely in the course of a few weeks the most obstinate cases of constipation in young children.

Virchows Archiv, Berlin

April, CCVIII, No. 1, pp. 1-160

122 Localization of Fat in the Liver. (Zur Kenntnis der Localisation des Fettes in der Leber.) W. Fischer.

123 Gastric Secretion and Ferments in Dogs After Phosphorus Poisoning and in Experimental Anemia. (Ueber die Sekretion und die Fermente des Magens bei Hunden nach Phosphorvergiftung und bei künstlich erzeugten Anämien.) D. Minami.

124 Appendicitis. G. Bolognesi.

125 *Suicide in Soldiers. (Weiterer Beitrag zur pathologischen Anatomie der militärischen Selbstmörder.) E. Miloslavich.

126 Differential Diagnosis of Primary Endothelioma in Bone and Hypernephroma Metastasis. (Zur Differentialdiagnose von primärem Knochenendothelium und Hypernephrommetastase, nebst Beitrag zur Histogenese der Grawitz-Tumoren.) F. Rost.

127 The Histologic and Chemical Change in the Thyroid with Exophthalmic Goiter; 230 Cases. (Die histologische und chemische Veränderung der Schilddrüse bei Morbus Basedowii und ihre Beziehung zur Funktion der Drüse.) A. Kocher.

125. **Suicide Among Young Soldiers.**—Miloslavich thinks it is more than a mere coincidence that he found signs of the lymphatic constitution in 80 per cent. of the 110 suicides whose pathologic anatomy is here tabulated. The transient mental disturbances liable to occur during or following an acute infectious disease seem more likely to affect persons of this stamp and to lead to suicide. Bartel came to the same conclusion from his study of 122 cases of suicide, published in 1909.

Wiener klinische Wochenschrift, Vienna

April 18, XXV, No. 16, pp. 585-617

128 Behavior of Embryonal Cells in Serum of the Healthy and the Cancerous. IV. (Verhalten embryonalen Zellen gegenüber Serum gesunder Menschen und Karzinomkranker.) R. Kraus and K. Ishiwara.

129 Negative Experimental Tests of Infectiousness of Blood of Syphilitics. (Zur Frage der Infektiosität des Blutes Syphilitischer.) R. Frühwald.

130 Technic for Determination of Arsenic in the Urine and Milk After Salvarsan. (Arsennachweis im Harn nach der Anwendung von Salvarsan.) W. A. Merkuriew.

131 *Sponges Left by Mistake in Abdomen. (Verlorene Gazekompressen. Beitrag zur Geschichte der Fremdkörper in der Bauchhöhle.) H. Hinterstoisser.

132 Colon Cancer. (Karzinom des Kolons mit mehrmaligem Abgang hochsitzender Tumoren mit dem Stuhl.) O. Adler.

131. **Fate of Foreign Bodies in Abdomen.**—Hinterstoisser reports the ultimate outcome in two cases in which a gauze sponge was left by mistake in the abdominal cavity. One patient had been operated on for ruptured extra-uterine pregnancy and, when dismissed, a non-sensitive infiltration was palpated to the left of the uterus. Three months later a laparotomy became necessary for a large tumor which proved to be the inflammatory reaction to a gauze compress which had worked its way into the small intestine, plugging it completely while the projecting end was adherent to other loops, requiring extensive resection of the whole mass. In the second case the sponge was spontaneously expelled through the vagina in a flood of pus. He has found 121 similar cases on record; 20 per cent. of the patients died later; in seventeen cases the sponge was not discovered until necropsy; five patients died after the operation to remove the foreign body and two after its spontaneous expulsion. The length of the sojourn of the foreign body in the abdomen ranged from a few days to twelve years. In six of the total cases the sponge had made its way into the bladder; in twenty-two into the intestine; in twenty-five it was eliminated through an abscess in the abdominal wall, and in eighteen it was spontaneously voided through the rectum. In conclusion Hinterstoisser warns that operations for extra-uterine pregnancy were responsible for these mishaps in an unusually large proportion of the cases, so that special care is necessary under these conditions and to ensure that nothing is left behind. All the sponges should be taped and the supply should be ample, so that an untaped sponge need not be taken in an emergency.

Zeitschrift für Kinderheilkunde, Berlin

IV, No. 1, pp. 1-96. Last indexed March 16, p. 826

133 Casein-Enriched Milk for Infants. (Verwendbarkeit caseinangereicherte Kuhmilch. Theoretische Ueberlegungen.) P. Heim and K. M. John.

134 Transient Fever in the Newly Born. (Ueber transitorisches Fieber bei Neugeborenen.) A. v. Reuss. (Fieberhafte Temperaturen bei neugeborenen Kindern in den ersten Lebenstagen.) F. Heller.

135 Digestion Lipemia. (Zur Frage der Verdauungslipämie.) P. Schulz.

136 Seroreaction in Alimentary Intoxication in Infants. (Reaktion des Blutserums bei alimentärer Seroreaktion des Säuglings.) B. Salge.

137 Involution of Adrenal Cortex. (Ueber die Involution der zentralen Rindenschicht der Nebenniere.) E. Thomas.

No. 2, pp. 97-176

138 Vasomotor Ataxia Following Scarlet Fever. (Funktionsstörungen des Blut- und Lymphgefässsystems der Haut als Folge des Scharlachexanthems. Beziehungen derselben zur Scharlach-Nephritis und Hautwassersucht.) O. Kirsch.

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139 Metabolism with Congenital Occlusion of Bile Passages. (Verhalten des Stoffwechsels bei angeb. Verschluss der Gallenwege.) A. Niemann.
140 Iron Content of Goat's Milk. (Der Eisengehalt der Ziegenmilch.) S. McLean.
141 Hydrochloric Acid in Infant's Stomach. (Salzsäure im Säuglingsmagen.) B. Salge.

Zeitschrift für klinische Medizin, Berlin

LXXV, Nos. 1-2, pp. 1-186. Last indexed April 27, p. 1325

142 Sensation of Heat by the Skin. (Beitrage zur Lehre von der Hautsensibilität. II.) A. Goldscheider.
143 Spirographic Findings in Health and Disease. (Spirographische Untersuchungen an Gesunden, Emphysematikern und Asthmatikern.) R. Staehelin and A. Schütze.
144 Action on Respiration of Light Erythem in Heart Disease. (Untersuchungen über die Wirkung des universellen Lichterythems auf die Respiration bei Herzkrankheiten.) V. Rubow and C. Sonne.
145 Instantaneous Roentgenography of the Heart. (Momentröntgenbilder des gesunden und kranken Herzens in verschiedenen Phasen seiner Tätigkeit.) J. v. Elischer.
146 Sarcoma of the Pericardium. F. Tobiesen.
147 Diagnostic Importance of Diastase Content in Urine and Stools. (Zur diagnostischen Bedeutung des Diastasegehaltes in Urin und Stuhl.) A. Lindemann.
148 Properties of Tuberculous Sputum. (Beitrag zu den biochemischen und chemischen Eigenschaften des tuberkulösen Sputums.) R. Eiselt.
149 Plethysmography of the Arteries. (Bedeutung und Technik der plethysmographischen Funktionsprüfung gesunder und kranker Arterien.) E. v. Romberg and O. Müller.
150 Origin and Pathology of Heart Sounds. (Klinische Beiträge zur Frage über die Entstehung der Herztöne und ihre pathologischen Verhältnisse.) C. Pezzi.
151 Changes in Blood in Pneumatic Cabinet. (Ueber Hämoglobinbestimmungen und die Rameroff-Kapazität des Blutes bei Aenderung des Atmosphärendruck im pneumatischen Kabinette.) E. Aron.
152 Jaundice and Metabolism. (Ikterus und Stoffwechsel.) G. Vanni.
153 Malignant Ulcerative Endocarditis. E. Maixner.

Zentralblatt für Chirurgie, Leipsic

April 13, XXXIX, No. 15, pp. 497-528

154 Ptosis of Transverse Colon. (Senkung des Colon transversum.) F. Smoler.
155 *Ischemic Paralysis. (Ueber Lähmung nach Esmarch'scher Blutleere.) W. Kausch.

155. Ischemic Paralysis.—Kausch makes a constant practice of expelling the blood from the field of operation with Esmarch's elastic constrictor, and he has never had a mishap from its use except in one case in which the bandage was left on for five hours and had been drawn far too tight. This is the rock on which others make shipwreck, he says, the application of the constrictor being left frequently to an inexperienced hand, drawing it too tight or else leaving it so loose that the surgeon does not derive any advantage from it. He never uses tubing for constriction, preferring an elastic bandage from 10 to 15 cm. wide which he applies by traction on the center, not pulling on the edges. He winds the bandage from the periphery to the trunk except when there is diffuse infection, in which case he elevates the limb for ten minutes. When the latter is done he warns that the elastic bandage must be applied as rapidly as possible, the constriction acting immediately and completely on the vessels so that there is no danger of the veins being compressed before the arteries, as this would cause venous hyperemia which must be avoided. He insists that the elastic constrictor, properly applied, can be left on for hours without fear of paralysis even in syphilitics.

Zentralblatt für Gynäkologie, Leipsic

April 13, XXXVI, No. 15, pp. 457-488

156 Roentgentherapy of the Ovaries. (Untersuchungen über die Lage der Ovarien an der Lebenden mit Rücksicht auf die Röntgenbestrahlung.) O. Hoehne and G. Linsenmeier.
157 *Treatment of Stricture of the Rectum. (Zur Behandlung der Rektalstrikturen.) E. Kaufmann.
158 Fatal Rupture of Aneurysm During Labor. (Verblutung während der Geburt infolge Ruptur eines Aneurysmas der Milzarterie.) W. Wesenberg.
159 Roentgentherapy in Gynecology. (Zur Frage der Röntgenbehandlung in der Gynäkologie.) A. Flessler.

157. Hemorrhage During Dilatation Treatment of Rectal Stricture.—Kaufmann found a cystocele and rectocele on examination of a woman referred to him by an ophthalmologist as the patient's severe ocular affection was being aggravated by the necessity for great straining at stool. He did a posterior and anterior colporrhaphy but the patient did not improve afterward, and examination of the rectum later showed an almost impassible stricture. He dilated the stricture systematically with bougies from No. 9 to 20. A few drops of blood were noticed as the sitting with the No. 20 was concluded and three and a half hours later the patient had a severe hemorrhage, losing from three to four pints of blood and over. Momburg's belt constriction was applied and the hemorrhage was arrested.

Gazzetta degli Ospedali e delle Cliniche, Milan

April 14, XXXIII, No. 45, pp. 465-480

160 Operative Treatment of Prolapse of the Uterus. (Nuova cura operativa del prolasso dell'utero.) G. Frattin.

April 16, No. 46, pp. 481-488

161 Morphin in General Anesthesia for Young Children as Applied in 300 Cases. (La morfina nella chirurgia infantile.) V. Brun.

Policlinico, Rome

April, XIX, Medical Section No. 4, pp. 141-188

162 The Wassermann Reaction in Diseases Other Than Syphilis. (Contributo allo studio della Reazione di Wassermann in semeiologia clinica.) S. Rizzi.
163 Transmission of Kala-Azar by Dogs. (Sull'identita e sul modo di trasmissione delle Leishmaniosi.) C. Basile.
164 Mode of Action of Inhalation of Oxygen. (Meccanismo di azione delle inalazioni di ossigeno.) G. Marchetti and C. Capezzuoli.
165 Auscultation of Air Passages at the Mouth. (Il rantolo orale di Galvagni.) R. Fua.

Riforma Medica, Naples

April 13, XXVIII, No. 15, pp. 393-420

166 Hypophysis Tumor in Insane Woman with Acromegaly. (Di un tumore ipofisario in alienata acromegalica.) A. Salerni.
167 Gas Cysts in the Intestine. (Sulla pneumatosi cistoide dell'intestino.) F. Bindi.

Revista de Medicina y Cirugia, Havana

April 10, XVI, No. 7, pp. 187-212

168 *Heart Block with Epileptiform Attacks. (Caso curioso de esclerosis cardio-bulbar.) A. M. Rubalcava.

April 25, No. 8, pp. 213-242

169 Vaccine Therapy of Gonorrhea. (Diagnostico por culturas y bacterioterapia de las afecciones gonococcicas.) A. Recio.
170 War to Flies. (La guerra contra las moscas.) L. M. Cowley.
171 Proof that Placenta May Transmit Malaria Germ. (La placenta puede ser conductora del "hematozoon malariae.") N. Lago-Vina.

168. Case of Heart Block.—The patient was a Mexican, 32 years old, and the syncopal seizures were of a pronounced epileptiform type. The pulse was only paroxysmally very slow, being nearly of a normal rate during the intervals. The ventricular systole coincided with the radial pulse. The seizures did not come on while the man reclined but he said that his head swam when he sat or stood up. Each seizure was preceded by a sensation of malaise and was followed by torpor and difficulty in speech.

Semana Medica, Buenos Aires

March 14, XIX, No. 11, pp. 501-552

172 *Symmetrical Gangrene. (Etiologia y tratamiento del sindrome de Raynaud.) C. B. Udaondo.
173 Mercurial Treatment in General Paralysis. (Del tratamiento mercurial en la paralisis general progresiva.) F. F. Morixe.

March 21, No. 12, pp. 553-604

174 *Emotion as Factor in Disease. (Rol de la emocion en la genesis de los estados neuropaticos.) P. Janet.
175 Hygiene and Mineral Waters. (La higiene y las aguas minerales.) V. Delfino.
176 *Operative Treatment of Megacolon. (Tratamiento quirurgico del bolo fecal inaccesible por el recto.) M. Soto.

172. Symmetrical Gangrene.—Udaondo has used successfully high frequency currents in two cases of vasomotor local asphyxia of the hands with small patches of gangrene on one finger. In the first case, under two months of the high frequency current sittings the pains and other symptoms gradually retrogressed until all traces of Raynaud's disease in the hands had disappeared. Later the feet became affected, and no improvement was realized under repetition of the same treatment. In the other case marked improvement was realized although treatment was not begun till late and the patient failed to complete the course. Gramond reported in 1907 the successful application of the high frequency current in three cases, even what was almost actual gangrene of two fingers retrogressing. The procedure called thermopenetration has proved useful in some cases, persevering superheated air treatment in others. Sedatives should be given as sparingly as possible. Local hydro-electric baths seem to have an influence on the pains. Udaondo having had a favorable experience with this measure in two cases. In one there was

concomitant pulmonary tuberculosis and under daily fifteen to forty-five minute hydro-electric baths the vasomotor disturbances entirely subsided. The method failed completely in another case, but this patient improved remarkably under the high-frequency current. In treatment Udaondo advocates trying one measure after another until benefit is realized. If amputation becomes necessary, the limb should be sacrificed far above the lesion or the outcome will be only a temporary relief.

174. **Emotions and Nervous Disease.**—Janet discusses what is meant by emotions, the symptoms of emotional conditions, the evolution and transformation of emotions, and the psychologic problems connected therewith. He declares that every emotion is a derangement of normal conditions, and that the limits between the normal and the pathologic conditions are vaguer here than in any other field, the outcome depending on the individual powers of adaptation. On the other hand, the laws of localization render it possible for innumerable and apparently most diverse somatic morbid conditions to develop in consequence of the influence of emotional stress. This is most liable to occur when a predisposition is afforded by some slight visceral disturbance.

176. **Treatment of Megacolon.**—Soto analyzes the various methods of treatment that have been applied and the results, reporting five cases in which three of the patients were cured by operative measures. One succumbed to the effects of eventration from the postoperative vomiting (chloroform), and another to peritonitis.

Nordisches Medizinisches Archiv, Stockholm

XLV, Surgical Section No. 1

177 *Varicocele and Its Operative Treatment. (Om Varicocele och dess operativa behandling.) G. Nilson.
178 *Subcutaneous Rupture of the Bladder. (Ueber Blasenruptur.) G. Naumann.

177. **Treatment of Varicocele.**—Nilson agrees with Spencer that the persistence of fetal veins is an important factor in the development of varicocele, especially as there does not seem to be any connection between the varicocele and varices elsewhere. Other factors are a general weakly constitution, an abnormally long and crooked course for the blood-vessels, straining at stool and bad conditions in regard to the circulation in the left side in general. These bad conditions may be still further aggravated by injurious influences of various kinds, especially military drill. The symptoms are aggravated by the patient's trade in some cases and resulting disturbances, especially moods of depression, must be regarded as direct symptoms. There is no evidence to date of impotence due exclusively to varicocele, and no evidence of an acute varicocele. The parts, however, become less resistant and epididymitis is frequent and peculiarly tenacious in such cases. He reviews the history of operative treatment, saying that excision of the altered vessels is the only logical and effectual measure. The blood is thus compelled to find its way through normal channels and thus relieve the testicle from the exaggerated venous pressure. The phlebectomy is done in the inguinal canal and the testicle is drawn up and held here by passing the lower stump of the vein around a 2 cm. wide strip of fibers worked loose from the aponeurosis, without disturbing their continuity. The knotted stump is held in place with two sutures and the rest of the stump beyond the ligature is cut off. The testicle is thus suspended by living tissue and the whole operation can be done under local anesthesia in fifteen minutes. The redundant scrotum soon shrinks to normal size. Nilson has applied this simple technic in sixty-one cases and the cure was complete in the forty-two reexamined after intervals of from three months to six years. Only one complained of a little pain due to an insignificant thrombosis in the part of the plexus left behind. Operative treatment is indicated by great pain, rapid aggravation of the trouble and manifest or threatening atrophy of the testicle. His cases are tabulated for comparison, and eleven pages of bibliography are appended.

178. **Rupture of the Bladder.**—Naumann remarks that the high mortality with intraperitoneal rupture of the bladder should not deter one from operating, as the patient is almost certainly doomed without; 200 fatal cases are on record. In some cases operative treatment proved successful even after an interval of four to ten days. In one of Naumann's three cases, the interval had been sixty-two hours and the young man recovered. He advocates suturing the rupture without fail unless forbidden by sepsis.

Ugeskrift for Læger, Copenhagen

April 4, LXXIV, No. 14, pp. 527-572

179 *Mechanical Support for Gastroptosis. (Baeltevirkning ved Gastroptose.) A. Borgbjærg and J. F. Fischer.

April 11, No. 15, pp. 573-602

180 Anorexia as Monosymptomatic Hysteria in Girl of 12. (Et tilfælde af infantil Hysteri.) G. Jørgensen.
181 *Collapse Under Ethyl Chlorid. (Klorætyl ved Adenotomi.) E. Nielsen.

April 18, No. 16, pp. 603-648

182 Dissociated and Athetoid Motor Disturbances with Traumatic Hysteria; Three Cases. (Bevægelsesforstyrrelser ved traumatisk Hysteri.) A. Wimmer.
183 *Differential Diagnosis Between Paralytic Dementia and Cerebral Syphilis. (Bidrag til Differentialdiagnosen mellem Dementia paralytica og Lues cerebri.) A. Bisgaard.

179. **Mechanical Treatment of Gastroptosis.**—Borgbjærg and Fischer have combined the Vermehren corset with Enriquez' air pad in treatment for disturbances from atony accompanied by sagging of the stomach, and report their experiences with it in twenty cases. Inflation of the pad under the inelastic corset raised the stomach practically to normal position in most of the cases, as can be seen in the roentgenograms accompanying the article. The support from the corset always gave subjective relief in most cases, bracing the spine. The improvement in the conditions of gastric functioning after the stomach was raised in this way was soon followed by restoration of normal conditions in the stomach musculature, tending to improve and cure the gastroptosis.

181. **Collapse Under Ethyl Chlorid General Anesthesia.**—Nielsen's patient was a boy of seven and the collapse occurred during removal of adenoid vegetations, with enlarged tonsils under general ethyl chlorid anesthesia, coming on in half a minute. There was considerable hemorrhage, but the child was revived by artificial respiration.

183. **Differential Diagnosis Between Paralytic Dementia and Cerebral Syphilis.**—Bisgaard's findings sustain the assumption that increased proportions of albumin in the cerebrospinal fluid indicate some organic lesion in the central nervous system. In case of existing paralytic dementia it is possible to precipitate out the greater part of this albumin with ammonium sulphate, while this is not possible with organic affections of the central nervous system, not even with syphilitic lesions in the brain. Only a fraction of the albumin can be precipitated with ammonium sulphate in these other conditions. He reports that this finding was constant in his tests of twenty-seven paralytics, seven patients with meningitis of various origins, five with cerebral syphilis and four with brain tumors. He applied the test in forty-seven cases in all, and describes the simple technic followed. After determining the proportion of albumin by the usual method, he mixed with another 1 or 2 c.c. of the spinal fluid equal parts of ammonium sulphate solution. In six hours the fluid above the precipitate is pipetted off and tested anew for albumin. In a typical case of paralysis the figures were respectively 4-15 before and 2-8 after the precipitation, while with tuberculous meningitis the figures were 5-42.5 and 2-37.5, and with brain tumor, 8-120 and 2-47.5. With cerebral syphilis the figures in a typical case were respectively 20-250 and 2-100, showing the large albumin content and the comparatively large proportion that escapes precipitation with this technic.

Correction.—In title 145 in THE JOURNAL, May 11, page 1488, read "Three Cases of Hernia of the Bladder" (instead of "Rupture").

Books Received

JOURNAL Announcements, Knocks and Boosts, Books Received and changes in the Public Service will be found in the advertising section, commencing on the second page following reading matter.

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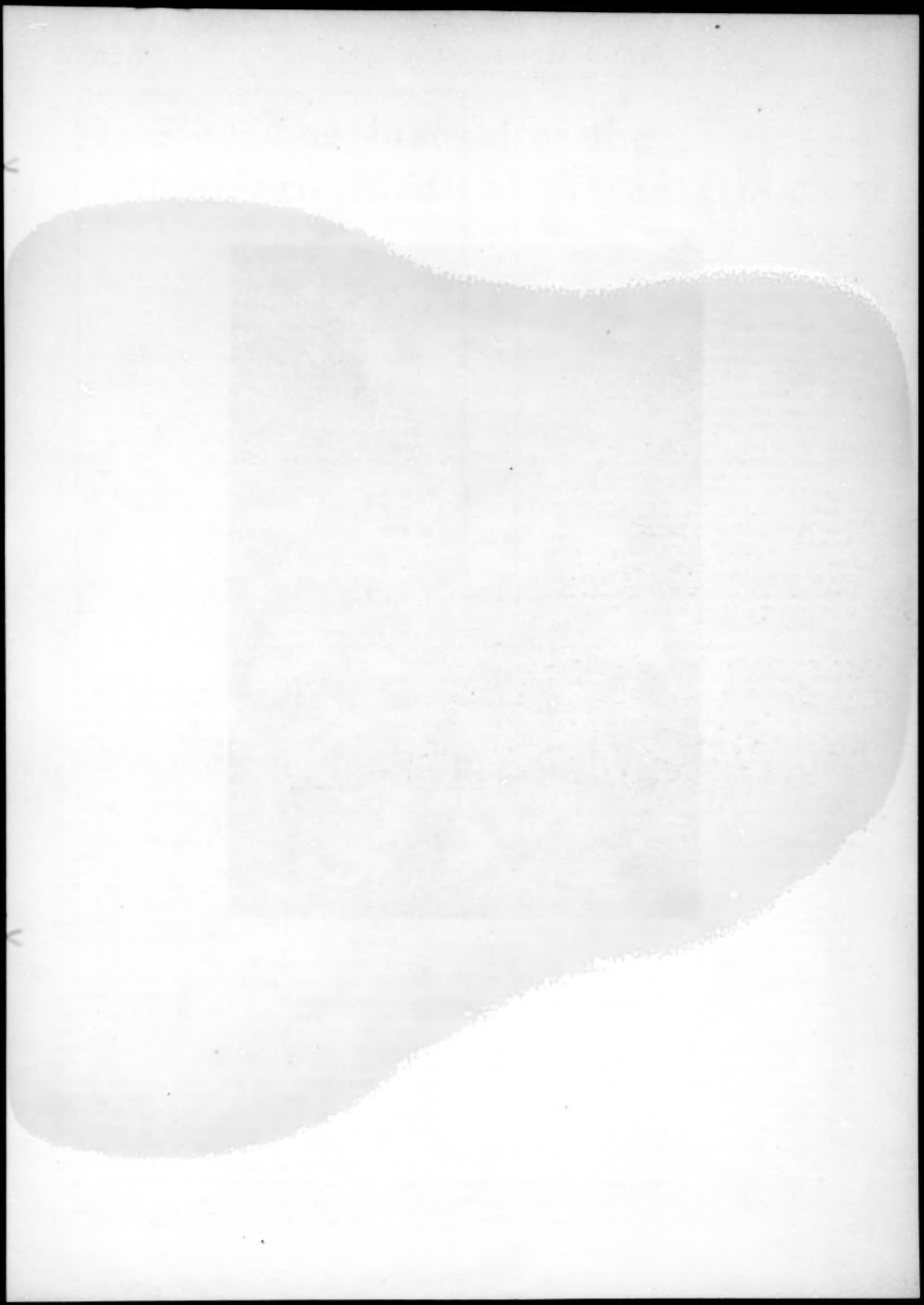

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